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THE INDUSTRIAL DEVELOPMENT OF MEXICO

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/Chapter I

EXPLANATORY NOTE

Resolution 250 (XI) of 14 May 1965, adopted by the Economic Commission for Latin America (ECLA) at its eleventh session, requested the Latin American Governments "to prepare national studies on the present status of their respective industrialization processes for presentation at the regional symposium". With a view to facilitating the task of the officials responsible for the national studies, the ECLA secretariat prepared a guide, which was also intended to ensure a certain amount of uniformity in the presentation of the studies with due regard for the specific conditions obtaining in each country.

Studies of the industrial development of fourteen countries were submitted to the Latin American Symposium on Industrial Development, held in Santiago, Chile, from 14 to 25 March 1966, under the joint sponsorship of ECLA and the Centre for Industrial Development, and the Symposium requested ECLA to ask the Latin American Governments "to revise, complete and bring up to date the papers presented to the Symposium".

The work of editing, revising and expanding the national monographs was completed by the end of 1966 and furthermore, two new studies were prepared. The ECLA secretariat attempted, as far as possible, to standardize the presentation of the reports, in order to permit comparison of the experience of the different countries with regard to specific problems, particularly in the field of industrial policy.

The national studies on industrial development, to be presented to the International Symposium relate, in alphabetical order, to the following countries: Argentina, Bolivia, Brazil, Central America, Chile, Colombia, Cuba, Ecuador, Guyana, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay and Venezuela.

Chapter I

BRIEF HISTORY

The social and economic development of Mexico, particularly in recent years, has been maintained by the deliberate promotion of industrialization. A double objective is thus being aimed at: on the one hand, a strengthening of economic independence, and on the other, a tendency towards integral diversification which would create employment and income to the extent required to halt the effects of the population explosion and raise the nation's standard of living.

The process of industrialization was begun during the first decades of the last century. However, because of the long period of instability, the end of the nineteenth century showed no considerable progress in this field. The electrical industry had been developed to a minor extent; intensified exploitation of coal and mineral resources was begun and the steel industry was established; manufacturing industry underwent considerable growth in light industries such as textiles and food. On the other hand, infrastructure was created with a view to the exportation of natural resources towards industrialized areas abroad. Apart from such an economic structure, problems such as the nation's notoriously poor purchasing power, the low level of education, and the pressures caused by population increase had not been considered; in other words, there was no national decision to face national problems.

The Mexican Revolution marks the moment in which the foundations of present-day Mexico's economic development are established. The promotion of general economic activity was based on the creation of infrastructure, with the specific purposes of producing export economies which would encourage private investment; fostering a higher level of production capacity which would account for a domestic supply of goods and services, to be continually improving in quantity and quality under the new conditions; reinforcing the domestic market, which had become even worse during the period of the revolution; and of developing and reorganizing an internal communications system favourable to the regional flow of domestic production.

With an evident sense of social justice, the Agrarian Reform and irrigation policy began the development process necessary to support the subsequent industrial expansion.

Later, in 1938, the country extended its control over coal, the most important source of energy at the time. A policy of expansion in this industry was begun, based on intensive prospecting for greater reserves in order to increase production capacity and, probably of more immediate importance, on the ready consumption on the part of production of goods and services, who had a supply of low-cost fuel available. Subsequently, control was established over coal and other underground resources, together with the nationalization of the electrical industry in 1960, which has enabled the country to use the basic sources of power in the promotion and organization of the industrialization process.

At the outbreak of the second World War in 1939, Mexico had already established a structure of instruments and institutions in law, land communications, trade, industry, culture, and technology, structures which, with the additional stimulus of war conditions, boosted industrial development.

Up to 1945, efforts resulted in the build-up of ample resources of capital, not only from exports, but also from the entry of immigrant capital. This gave rise, in the immediate post-war years, to an appreciable rhythm of public and private sector investments in all fields of industry and in the rest of the economy in general.

However, the post-war years brought about the recovery of the highly industrialized countries, which, although seriously weakened in production and in human resources, had a force of overall recovery the impact of which became evident by the end of the Forties.

Mexico, then, had to fortify its protectionist policy by raising its tariff barriers; at the same time, new laws of industrial promotion were put into force which enabled the development of manufacturing industries to continue, by means of fiscal and financial stimulants. Within this policy, the Government has played a very important part in the promotion of industries which, because of the high amount of investment required, their long-term returns, and their high social-economic importance, appeared unattractive to private enterprise.

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Through the aid of this policy, the structure of national industry has achieved appreciable progress, although in some cases protection has gone too far. However, it was in this way that the production structure of the Forties (insufficient and with little diversification, characterized by the predominance of agriculture, by an industrial production, generally speaking, of consumer goods, and by a domestic market which was restricted by the poor purchasing power of the population) was developed in the following years to higher levels of national integration, with an important shift towards manufacturing industry.

An analysis of the last three five-year periods shows that the country's industrial development has been activated by legislative benefits and by infrastructure projects carried out by the Government. Since 1950, industrial enterprises have increased in number and have diversified; production and employment figures have improved; dependence on imported goods has been reduced, and the export position has been strengthened. All this has been made possible because of increased public and private investment in industry, the country's strong financial position, heavy investments in infrastructure, the work of training and educating the population, and because of the country's political stability, which has enabled the task to be organized within an established framework of order and social progress. The part played by the Agrarian Reform is worth special mention as it strengthened the domestic market at an early stage.

The following paragraphs contain a short summary of the changes undergone by Mexico's industrial economy as a result of the factors described above.

1. Production

The industrial growth and development can be seen by examining production indexes for the period 1950 to 1964. The volume of industrial production during this period rose by an average rate,7.3 per cent yearly. The most dynamic sectors were the petroleum industry, with production developing at the annual average rate of 10.2 per cent; generation of electrical energy, with a growth rate of 9.5 per cent; the manufacturing industry, where production increased by 7.6 per cent annually, and construction, with an annual average growth of 7.6 per cent. In petroleum production, the extraction of crude petroleum increased at the rate of

/5.5 per cent

5.5 per cent annually, while production of petroleum derivatives developed at an annual average rate of 11.2 per cent. In the manufacturing industry, domestic production of consumer goods went up by 6 per cent annually, while that of producer goods went up at the annual rate of 9.8 per cent.

During the period 1950-1964, industries manufacturing food products, beverages and tobacco, textiles, and the wood and cork industries, showed a lower relative growth than that of the producer goods industries. Since 1950 an important structural change in the manufacturing industry has taken place, brought about by the rapid growth of the manufacture of producer goods such as paper and wood pulp, timber, rubber products, non-metallic mineral manufactures, steel and metal products, basic chemical products, mechanical and electrical machinery, and transport equipment. The overall annual growth rate for these goods during the period under consideration was 9.6 per cent.

2. Employment

In 1964, 32.5 per cent of the total population was employed. Compared with 1950, the labour force increased in proportion to the total population; however, during the Fifties the employment situation underwent important changes because of structural changes in the economy. In 1950, 58.3 per cent of the labour force was engaged in primary employment (agriculture, livestock, forestry, hunting and fishing), while 15.9 per cent worked in industry, and 11.7 per cent in manufacturing; the remainder was employed in transport, commerce, and services. In 1964, labour force engaged in primary employment represented 54.2 per cent of the total, and the amount employed on a permanent basis in industry was 19 per cent of the total labour force, and in manufacturing, 16 per cent.

Expressed numerically, industry employed 1,319,163 persons in 1950, while the 1964 figure was up to 2,447,920. This represents an average annual growth rate of 5 per cent, compared with the 3.1 per cent increase in total labour force.

/3. Productivity

3. Productivity

Changes taking place in the structure of labour have been similar to the changes in the relative share of industry[1] in gross domestic product. In 1950, industry's share was 30 per cent, which had increased to 33 per cent by 1964. In other terms, industry was responsible for 22,897 million pesos of the 1950 product, and for 75,736 million pesos (at 1964 prices) in 1964. The manufacturing industry alone accounted for 20.8 per cent of gross domestic product in 1950, while in 1964 this percentage was up to 25.2.

Productivity in manufacturing also increased: in 1950 the product per employee was 17,693 pesos, and in 1964 had risen to 53,401 pesos (at 1964 prices) giving a growth rate of 8.9 per cent annually.

As a comparison, the product per employee in the economy as a whole rose from 9,923 pesos to 17,433 pesos (both figures at constant prices) between 1950 and 1964, representing a growth rate of 4.1 per cent.

4. Investment

The production and employment increases already mentioned have been achieved as a result of increasing investment in industry.

Public and private investment in industry amounted to 41.9 per cent of the country's total gross investment in 1964, while in 1950 the percentage was 31.3. The amounts invested (at 1950 prices) were 1,872 million pesos in 1950, and 5,053 million pesos in 1962, an annual growth rate of 8.6 per cent.

Public industrial investment has been principally channeled towards the production of electrical energy, petroleum and petroleum products, and construction. Private investors have been concerned with increasing and diversifying the production apparatus of the manufacturing industry.

5. Development of different branches of manufacturing industry

In previous paragraphs it was stated when mentioning the growth of different branches of industry that the most dynamic sectors were the petroleum industry, the electrical generating industry, and manufacturing industry. In the latter item, the manufacture of producer goods has grown

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[1] Includes extractive industries, including petroleum, manufacturing, construction, electricity, and gas.

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at a quicker rate than that of consumer goods. This fact may easily be ascertained by referring to the growth rates of production among the different branches between 1950 and 1964, based on volume indexes at constant prices of 1964.

Steel production and the manufacture of metal products, excluding machinery and transport equipment, developed at the annual rate of 11.5 per cent; machinery construction increased production by an annual 10.0 per cent; the construction and repair of transport equipment went up by 10.7 per cent annually, and the manufacture of chemicals and chemical products increased at an annual rate of 12.5 per cent. In comparison, the manufacture of food products increased at a mere 6.7 per cent annually during the period under consideration.

On the other hand, the increase in domestic production of goods has meant a certain reduction of some import items in basic industrial sectors, as well as diversification of exports. This may be seen by comparing the import figures of each industrial sector with the total domestic supply, for the period 1950 to 1964. Purchases abroad of steel products, machinery, wood pulp and its products, textiles, chemical products and transport equipment, to mention the more important items, have reduced their share in the total domestic supply (production plus imports).

Basing calculations on constant prices of 1950, purchases abroad of steel products accounted for 28.6 per cent of the total domestic supply in 1950, and only for 11.4 per cent in 1964; imports of machinery accounted for 72.6 per cent of the supply in 1950 and for 40.0 per cent in 1964; purchases abroad of wood pulp, paper, cardboard and products dropped from 25.1 per cent in 1950 to 12.0 per cent in 1964; textile imports accounted for 5.3 per cent in 1950, and only for 4.3 per cent in 1964; imports of chemicals and chemical products represented 29.5 per cent of the total supply in 1950, and 13 per cent in 1964; and to conclude, purchases abroad of transport equipment made up for 37.4 per cent of the supply in 1950, and for 35.4 per cent in 1964. These figures show that although production in the important sectors of manufacturing industry is not yet sufficient to satisfy domestic consumption completely, at least a process of import substitution has been put into effect. This fact becomes all the more important if the high growth rates of consumption are taken into account.

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On the other hand, exports of manufactured goods have accounted for an average of 20 per cent of total exports in recent years. Manufacturing industry exports have been increased in the case of semi-processed products as well as that of end consumer goods. The branches of industry which have made the most important contributions to this increase in the period 1958 to 1964 were the industries producing chemicals and chemical products, non-metallic mineral products, and machinery construction. These industries increased their foreign sales by an annual average rate of 6.5 per cent, 11.7 per cent, and 12.4 per cent respectively (at constant prices of 1950). The manufacturing industry as a whole increased its exports by an annual 6.5 per cent between 1958 and 1964.

To conclude, the industrial development of Mexico has been marked by an important tendency to be concentrated in a few cities. The latest available information shows that about 80 per cent of employed persons are concentrated in the Federal District and adjacent states of Mexico and Puebla, as well as in the states of Nuevo León and Coahuila. However, attempts are now being made to disperse industry by creating new centres. Examples are: the Istmo de Tehuantepec, where steps are being taken to form an industrial centre which would combine the advantages of natural resources and transport facilities with the petroleum and petrochemical plants set up in the area; the region of Querétaro, where an important nucleus of heavy and light mechanical industries, etc. is under development.

/Chapter II

Chapter II

THE RELATIVE IMPORTANCE, STRUCTURE, AND GENERAL CHARACTERISTICS OF THE MANUFACTURING INDUSTRY

1. Position of the manufacturing sector in the national economic structure

The present economic development policy has aimed at changing the structure of the country's economic activity by fostering expansion of the manufacturing sector, as a means of overcoming the restrictions represented by traditional sectors, thereby solving the problems arising from their low productivity and from the new necessities caused by population growth.

The major part of this policy has been to promote industrialization. Different stages of the policy, to increasing extents of complexity and integration, have been achieved from simple processes of import substitution of non-durable consumer goods to the production of capital goods. As a result of this policy, between 1950 and 1964 the manufacturing sector increased its share in gross national product from 20.8 per cent to 25.2 per cent. A comparison of these figures with those of the traditional sectors of economic activity shows progress on the part of manufacturing. For example, agriculture reduced its share in the gross national product from 13.8 per cent to 11.5 per cent over the same period; livestock, forestry and fishing dropped from 7.8 per cent to 6.2 per cent, and mining continued its falling off tendency with a drop from 3.1 per cent to 1.8 per cent. (See Tables 1, 2, 3 and 4.)

As an explanatory factor for the progress of manufactures, the increased supply of energy must be considered. This factor, particularly in the period under consideration, greatly attracted the attention of the public sector's investment programmes. It was thus that petroleum accounted for 2.8 per cent of the gross national product in 1950, and for 3.4 per cent in 1964; electricity increased from 0.9 per cent to 1.4 per cent. Energy as a whole increased from 3.8 per cent to a little more than 5 per cent which, at current values, meant a more than threefold increase over the 1950 figure.

/Table 1

Table 1

MEXICO: GROSS NATIONAL PRODUCT

(In millions of pesos)

Year	At current prices	At 1964 prices
1950	40 577	82 810
1951	52 311	86 180
1952	58 643	93 084
1953	58 537	94 874
1954	71 540	105 975
1955	87 349	113 884
1956	99 323	123 690
1957	114 225	136 470
1958	127 152	145 483
1959	136 200	153 898
1960	154 137	166 095
1961	163 757	174 667
1962	177 533	186 093
1963	190 844	199 007
1964	224 600	224 600

Source: Banco de México, S.A.

/Table 2

Table 2

MEXICO: GROSS NATIONAL PRODUCT

(1950 index = 100)

Sectors	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964a/
Gross national product	107.5	111.8	112.4	124.2	135.0	143.5	154.5	163.1	167.9	181.1	187.4	196.4	208.7	229.7
Gross domestic product	107.7	111.9	112.1	123.9	134.7	143.6	154.5	163.0	167.7	181.0	187.3	196.6	209.1	229.9
Agriculture	105.0	100.3	100.9	126.2	140.3	132.2	144.5	157.2	145.2	155.0	157.0	166.9	169.4	182.1
Livestock	107.1	111.0	109.0	114.2	119.2	124.1	134.1	140.4	145.8	153.3	159.3	164.6	169.5	175.5
Forestry	101.4	79.4	79.0	85.9	97.2	97.1	92.5	85.7	96.4	96.4	86.6	89.7	98.1	104.6
Fishing	94.6	78.0	90.9	90.4	111.3	132.7	122.0	139.9	158.6	177.1	190.9	190.9	201.3	198.7
Mining	96.4	107.0	105.9	99.8	115.6	116.8	124.5	123.8	127.7	132.6	127.0	128.6	133.1	135.2
Petroleum	110.0	116.0	117.8	126.8	136.8	146.0	155.5	173.8	197.0	207.8	231.4	235.8	250.4	273.1
Manufactures	110.6	115.5	114.2	125.3	137.5	153.1	163.1	171.9	187.3	202.9	210.1	223.6	244.1	277.1
Construction	109.5	123.3	113.8	122.5	136.5	157.6	178.3	172.2	176.0	201.6	203.6	205.8	238.2	278.6
Electrical energy	111.0	120.7	128.9	142.0	158.3	177.0	191.1	205.7	221.0	242.6	265.6	283.0	310.0	356.2
Transport and communications	109.6	120.9	124.7	133.7	143.4	158.9	165.9	171.2	176.4	183.0	184.3	184.7	192.7	204.2
Commerce	109.7	113.0	115.6	122.5	132.4	141.0	151.8	159.6	163.8	178.3	184.0	193.2	205.4	227.1
Government	106.5	113.3	115.3	120.8	123.6	130.9	140.5	142.0	146.4	153.4	164.5	175.0	184.1	202.5
Other activities	103.9	112.7	111.2	130.4	140.6	157.2	169.8	182.4	184.8	205.0	214.6	226.4	240.4	259.2

Source: Banco de México, S. A.

a/ Provisional figures.

/Table 3

Table 3

MEXICO: STRUCTURE AND TENDENCY OF GROSS NATIONAL PRODUCT

(In millions of pesos at 1964 prices)

Item	1950	1955	1960	1964
Gross national product	82 610	113 884	166 095	224 600
Percentage	100.0	100.0	100.0	100.0
Manufactures	17 216	24 132	38 685	56 689
Percentage	30.79	21.19	23.29	25.24
Agriculture	11 436	17 504	20 745	25 941
Percentage	13.81	15.37	12.49	11.55
Livestock, forestry and fishing	6 451	7 904	10 912	13 925
Percentage	7.79	6.94	6.57	6.20
Mining	2 534	3 006	3 721	4 110
Percentage	3.06	2.64	2.24	1.83
Transport and communications	4 058	5 939	8 222	10 062
Percentage	4.90	5.21	4.95	4.48
Petroleum	2 302	3 212	5 298	7 569
Percentage	2.78	2.82	3.19	3.37
Electricity	754	1 207	2 026	3 168
Percentage	0.91	1.06	1.22	1.41
Construction	2 625	3 656	5 863	8 310
Percentage	3.17	3.21	3.53	3.70
Commerce	21 936	28 460	41 491	56 824
Percentage	26.49	24.99	24.98	25.30
Government	2 642	3 325	4 484	6 311
Percentage	5.19	3.19	2.70	2.81
Others	10 856	15 545	24 648	31 691
Percentage	13.11	13.65	14.84	14.11

Source: Banco de México, S. A.

/Table 4

Table 4

MEXICO: COMPARATIVE GROWTH RATES

(Average annual percentages)[a]

Periods	1950-1955	1955-1960	1960-1964[b]	1950-1964
Gross national product	6.5	7.8	7.8	6.1
Manufactures	7.0	9.9	10.0	7.6
Agriculture	8.9	3.5	5.7	4.4
Livestock, forestry & fishing	4.1	6.7	6.3	4.4
Mining	3.5	4.3	2.5	2.2
Transport and communications	7.9	6.8	5.2	5.2
Petroleum	6.9	10.5	9.3	7.5
Electricity	9.8	10.9	11.8	9.5
Construction	6.9	9.9	9.1	7.6
Commerce	5.4	7.8	8.2	6.1
Government	4.7	6.2	8.9	5.2
Others	7.4	9.6	6.5	7.1

Source: Banco de México, S.A.

a/ Obtained from figures expressed in millions of 1964 pesos.

b/ Provisional figures.

Considering the fact that the supply of energy is mainly intended for domestic consumption, the above figures not only show that manufacturing in Mexico has undergone expansion, but an examination of their structure will enable conclusions to be made as to its diversification and relative technical progress (see Tables 5 and 6).

/Table 5

Table 5

MEXICO: DEVELOPMENT OF SOURCES OF NET POWER

(In thousands of tons of petroleum equivalent, and percentages)

Year	Total a/	Power derived from petroleum b/		Natural gas c/		Hydro-electricity		Coal and coke		Charcoal and vegetable fuel	
1940	4 902	3 387	69.2	187	3.8	722	14.7	448	9.1	159	3.2
1941	5 341	3 809	71.3	180	3.4	703	13.2	467	8.7	182	3.4
1942	5 783	4 102	70.9	149	2.6	825	14.2	489	8.5	218	3.8
1943	6 638	4 874	73.4	176	2.7	811	12.2	558	8.4	219	3.3
1944	6 772	5 056	74.7	273	4.0	743	11.0	484	7.1	216	3.2
1945	7 351	5 460	74.3	280	3.8	903	12.3	493	6.7	216	2.9
1946	8 495	6 091	71.7	727	8.6	921	10.8	526	6.2	230	2.7
1947	8 995	6 685	74.3	567	6.3	910	10.1	565	6.3	269	3.0
1948	9 426	7 147	75.8	489	5.2	893	9.5	591	6.3	306	3.2
1949	10 369	7 664	73.9	812	7.8	930	9.0	630	6.1	334	3.2
1950	11 454	8 297	72.4	1 476	12.9	871	7.6	510	4.5	301	2.6
1951	12 558	9 085	72.3	1 507	12.0	1 049	8.4	602	4.8	315	2.5
1952	13 349	9 473	71.0	1 581	11.8	1 214	9.1	738	5.5	343	2.5
1953	13 266	9 757	73.6	1 697	12.8	1 180	8.9	307	2.3	325	2.4
1954	14 910	10 778	72.3	1 816	12.2	1 237	8.3	754	5.0	325	2.2
1955	15 969	11 462	71.8	1 890	11.8	1 530	9.6	762	4.8	325	2.0
1956	16 771	11 832	70.5	2 006	12.0	1 840	11.0	793	4.7	300 d/	1.8
1957	18 829	13 878	73.7	2 179	11.6	1 670	8.9	802	4.2	300	1.6
1958	19 658	14 062	71.5	2 459	12.5	2 015	10.3	822	4.2	300	1.5
1959	23 032	14 277	62.0	5 134	22.3	2 480	10.8	841	3.6	300	1.3
1960	25 531	15 405	60.3	2 349	25.9	2 349	9.2	860	3.4	300	1.2

Sources: Mexican Petroleum Company; Federal Electricity Commission; "La Industria de la Energía Eléctrica" by Cristóbal Lara B.; Annual Reports of "Nacional Financiera S.A." (Mexican Finance Corporation).

a/ Direct calculations of the Government Department for Industry.

b/ Includes only power-producing sources; other uses of petroleum account for an average of 4.1 percent of total production.

c/ Excluding losses, burnt and reinjected gas.

d/ A steady consumption of 300 thousand tons of petroleum equivalent is estimated up to 1965.

/Table 6

Table 6

MEXICO: DEVELOPMENT OF SOURCES OF POWER
(In thousands of tons of petroleum equivalent)

	Item	1940	1945	1950	1955	1960
I.	Total power	49 022	73 510	114 542	159 688	253 314
II.	Grand total	50 325	75 549	116 235	162 507	266 023
III.	Power derived from petroleum	33 865	54 595	82 966	114 619	154 048
IV.	Natural gas	1 867	2 795	14 756	18 899	66 176
V.	Hydroelectricity	7 220	903	871	1 530	2 349
VI.	Coal and coke	4 480	493	510	762	860
VII.	Vegetable sources	159	216	301	325	300

Sources: Mexican Petroleum Company; Federal Electricity Commission; "La Industria de la Energía Eléctrica" by Cristóbal Lara B.; Annual Reports of the Nacional Financiera S.A. (Mexican National Finance Corporation).

The growing importance of the manufacturing sector and of the efforts made by means of the industrial policy to stress this sector as a solution to the country's problems, can be seen by comparing the annual average growth rates for recent periods with those of other sectors. In the periods 1950-1955 1955-1960, and 1960-1964, it will be seen that the growth rates of manufactures are greater than those of the gross national product; among the other sectors, taking the latest period into consideration, they have been exceeded only by electricity.

It is thus possible to establish the fact that a close relationship exists between the increase in manufactures and the maintenance of general economic activity. In spite of the fact that in some years traditional sectors have shown serious setbacks, which on their own would have meant an appreciable reduction in the growth of national product, the dynamic character of the manufacturing sector has not only enabled this effect to be counterbalanced, but has even brought about a considerable increase.

The effect of industrial development on employment must also be taken into consideration. Employment in industry accounted for 11.7 per cent of the total working population in 1950, and for 16 per cent in 1964. In actual figures, employment in industry was doubled between these years, a fact which, when compared with the growth rate of the population and of the working population, underlines the active part that industrial development is playing in absorbing excess manpower from other sectors and in annually increasing the labour force. (See Table 7.)

Although progress has been made in the development of groups of industrial branches, it can be seen that traditional activities have lower production and aggregate value growth rates than the branches which are considered as dynamic. It is obvious that these discrepancies, representing as they do the most advanced stage that the industrialization process is undergoing, also marks the present limits of demand, because of the low income per inhabitant. Moreover, the fact must also be considered that the industrial production in this case is of direct and durable consumer goods, the saturation point of which, because of the limitations of demand, could be very close; for this reason their growth is strictly related to that of the general population. Industries with very little growth are food, beverages and tobacco, textiles, and wood and cork, excluding furniture, whose respective growth rates varied between 3.9 per cent and 5.9 per cent. In an intermediate category are to be found wood pulp, paper and cardboard and their products, and printing, publishing and associate industries; in these industries the growth rates were slightly higher than the previous groups, varying between 6.3 per cent and 8.4 per cent.

/Table 7

Table 7

MEXICO: EMPLOYMENT IN THE MANUFACTURING SECTOR

(In thousands of persons and percentages)

Item	1950	1952	1955	1958	1960	1964a/
A. Total population	25 791.0	27 283.1	29 579.4	32 347.7	34 923.1	39 642.7
B. Working population	6 345.2	8 828.0	9 603.4	10 466.8	11 332.0	12 883.9
Percentages	32.4	32.4	32.4	32.4	32.4	32.5
C. Persons employed in manufacturing	972.5	1 028.8	1 119.1	1 299.8	1 556.3	2 061.4
Percentages	11.7	11.7	11.7	11.7	13.7	16.0

Source: Government Statistics Department.

a/ Provisional figures.

Industries of dynamic growth are principally chemicals, machinery construction, rubber products, metal products and others. Because these types of industry are being developed at advanced stages, on which the country's industrialization process is based, their growth rates were considerable - between 8.5 per cent and 19.3 per cent. (See Table 8.)

2. General projections of industrial development 1965-1970

Assuming that the population of Mexico maintains its present growth rate, there will be 48.7 million inhabitants by 1970 - an increase of 7.7 million persons. This means an average annual increase in the working population of 530,000 persons in the period 1965-1970. This figure means, as a minimum general increase in the economy, the creation of the same number of new jobs. (See Table 9.)

This problem makes it a national necessity to carry out industrial development at a rate that would allow for the absorption of the major part of this increase into manufacturing. In view of this, the rate of development will have to be fixed according to national investments possibilities; these can be calculated on the basis of the industrial development of 1964, which was 13.5 per cent higher than the previous year. However, this figure was exceptionally high, and it is to be expected that future growth rates will be smaller.

/Table 8

Table 8

MEXICO: GROWTH OF MANUFACTURING INDUSTRIES, 1950-1964

(Millions of pesos at 1964 prices)

	Groups	Annual growth rates of aggregate value
20, 21 and 22.	Industries manufacturing food, beverages and tobacco	5.7
23.	Textile manufacture	3.9
24.	Manufacture of footwear, garments, and other articles made from textile products	11.3
25.	Wood and cork industries, excluding furniture	5.3
27.	Wood pulp, paper, cardboard, and their products	8.4
28.	Printing, publishing, and associate industries	6.3
29.	Leather and leather products, excluding footwear	12.9
30.	Manufacture of rubber products	11.0
31.	Manufacture of chemicals and chemical products	10.0
32.	Non-metallic mineral products, excluding derivatives of coal and petroleum	8.7
34.	Steel, and manufacture of metal products, excluding machinery and transport equipment	14.4
36.	Machinery construction	19.3
38.	Construction and repair of transport equipment	11.4
39.	Other manufacturing industries	9.0

Sources: Banco de México, S.A.
Government Department for Industry.

/Table 9

Table 9

MEXICO: INCREASE IN LABOUR FORCE

(Thousands of persons)

Year	Working population	Annual increase
1965	13 334.8	450.9
1966	13 844.0	509.2
1967	14 372.5	528.5
1968	14 921.0	548.5
1969	15 490.3	569.3
1970	16 081.2	590.9

Source: Government Statistics Department.

It has been considered indispensable to calculate the goals of the manufacturing sector by other methods. For this purpose, the growth of gross national product was calculated, and four hypotheses were arrived at. The first is a simple projection of national product based on the pattern of recent years, which gives an average rate of 5.2 per cent. The second takes 6 per cent as the minimum growth rate. However, because of prevalent conditions and of changes in industrial policy, an activation of the task of promoting new manufacturing industries can be foreseen; in other words, annual rates greater than 6 per cent may be attained, and the growth of national product may reach 6.5 per cent, or even 7 per cent. These two last hypotheses are considered within practicable reach if the new policy succeeds in stimulating industrial sector investment to a maximum. (See Table 10.)

/Table 10

Table 10

MEXICO: PROJECTION OF GROSS NATIONAL PRODUCT

Item	Hypothesis and rates	1965	1966	1967	1968	1969	1970
A. Gross national product (millions of 1964 pesos)	I (5.2%)	236 279	248 545	261 502	275 090	289 397	304 445
	II (6.0%)	238 076	252 361	267 499	283 558	300 560	318 597
	III (5.5%)	239 199	254 741	271 294	288 948	307 724	327 714
	IV (7.0%)	240 322	257 145	275 135	294 406	315 024	337 057
B. Total population (thousands of persons)	(3.5%)	41 030	42 466	43 953	45 491	47 083	48 731
C. Product per person a/ (pesos at 1964 prices)	I (1.7%)	5 759	5 853	5 950	6 047	6 147	6 247
	II (2.5%)	5 802	5 943	6 086	6 233	6 384	6 538
	III (3.0%)	5 830	5 999	6 172	6 352	6 536	6 727
	IV (3.5%)	5 857	6 055	6 260	6 472	6 691	6 917

Source: Estimations by Government Department for Industry.

a/ The product per capita was obtained by dividing the four original hypotheses by the population for each year of the projection, thus arriving at the four secondary hypotheses.

Using maximum potential, obtained from historical analysis, as a basis, a coefficient of flexibility was worked out to measure variation in cumulative annual growth of industrial product per inhabitant; the result was a coefficient of 1.6. Projections, however, were calculated with coefficients of 1.7 and 1.9 respectively, in order to account for foreseeable development.

Thus, as shown in Table 11, in 1970 the industrial product could reach the sum of 100,000 million pesos at 1964 prices.

/Table 11

Table 11

MEXICO: PROJECTIONS OF INDUSTRIAL PRODUCT PER CAPITA, AND OF MANUFACTURING SECTOR PRODUCTION

Item	Hypotheses and growth rates	1965	1966	1967	1968	1969	1970
A. Industrial product per capita (pesos at 1964 prices)	I (2.9)	1 471	1 514	1 558	1 603	1 650	1 698
	II (4.3)	1 491	1 556	1 622	1 692	1 765	1 841
	III (5.1)	1 503	1 580	1 660	1 745	1 834	1 927
	IV (6.0)	1 516	1 607	1 703	1 805	1 914	2 028
	I (3.2)	1 476	1 523	1 572	1 622	1 674	1 727
	II (4.8)	1 499	1 571	1 646	1 725	1 808	1 895
	III (5.7)	1 512	1 598	1 689	1 785	1 827	1 994
	IV (6.7)	1 526	1 628	1 737	1 854	1 978	2 110
B. Manufacturing sector production (millions of 1964 pesos)	I (6.5)	60 355	64 294	68 479	72 922	77 687	82 745
	II (7.9)	61 176	66 077	71 292	76 971	83 101	89 714
	III (8.8)	61 668	67 096	72 962	79 982	86 350	93 905
	IV (9.7)	62 201	68 243	74 855	82 111	90 117	98 826
	I (6.8)	60 560	64 676	69 094	73 786	78 817	84 158
	II (8.5)	61 504	66 714	72 347	78 472	85 126	92 345
	III (9.4)	62 037	67 861	74 237	81 201	86 021	97 170
	IV(10.4)	62 612	69 135	76 346	84 340	93 130	102 822

Source: Item A was obtained from the rates calculated in appendix 1, applied to the 1964 figures (1430). Item B was calculated by multiplying the hypotheses in A by the total population appearing in Table 10, but average growth rates were taken from the 6 figures in item B. Estimations by Government Department for Industry.

The previous figures give rise to the following: (a) the percentage of industrial product with regard to the total product could vary between 25.4 per cent in 1965 and 26.4 per cent in 1970, and (b) the difference between the growth rate of the industrial product and that of gross national product could be 1.4 per cent for the period 1965-1970.

The consequences that all this would have on industrial labour force, mean that by 1970 industry would be in a position to employ between 2.8 and 3.0 million persons, considering that the growth rate of gross national product may be between 5.2 per cent and 7 per cent. This in its turn implies that the percentage of the working population would be between 17.6 and 18.5 per cent for 1970 and that the annual increase in employed persons would be between 144.7 and 176.2 thousand. (See Tables 12 and 13.)

Table 12

MEXICO: PROJECTIONS OF EMPLOYMENT IN THE MANUFACTURING SECTOR

(Thousands of persons)

Item	1965	1966	1967	1968	1969	1970
Total population (thousands)	41 030.2	42 466.2	43 952.6	45 490.9	47 083.1	48 731.0
Working population (thousands)	13 354.8	13 844.0	14 372.5	14 921.0	15 490.3	16 081.2
Percentages	32.5	32.6	32.7	32.8	32.9	32.0
Employment in manufacturing (thousands)						
I (10.4:1.9 = 5.4)	2 172.3	2 289.6	2 413.2	2 543.5	2 680.9	2 825.6
II (10.7:1.9 = 5.6)	2 176.4	2 298.2	2 427.0	2 562.9	2 706.5	2 858.0
III (10.4:1.7 = 6.1)	2 186.7	2 320.1	2 461.7	2 611.7	2 771.0	2 940.2
IV (10.7:1.7 = 6.3)	2 190.8	2 328.9	2 475.7	2 631.5	2 797.4	2 973.6

Source: See Table 7. Projections: for total population an annual growth rate of 3.5 per cent was applied; for working population, the tendency of previous years (since 1950), was continued. The four hypotheses for employment in manufacturing were based on the flexibility formula - A Industrial Product/A employment. The foreseeable flexibility rates are 1.7 and 1.9; given these rates and the assumed growth rates for product of 10.4 and 10.7, the respective rates for hypotheses I, II, III and IV were obtained.

/Table 13

Table 13

MEXICO: RATIO BETWEEN PROJECTED EMPLOYMENT IN MANUFACTURING AND WORKING POPULATION, 1965-1970

(Percentages)

Hypotheses	1965	1966	1967	1968	1969	1970
I	16.3	16.5	16.8	17.0	17.3	17.6
II	16.3	16.6	16.9	17.1	17.5	17.8
III	16.4	16.7	17.1	17.5	17.8	18.3
IV	16.4	16.8	17.2	17.6	18.0	18.5

Source: Estimates from Table 12.

Where projections for groups of industrial branches are concerned, the possibilities, obtained from an estimation of several private programmes and from consultations with investors, show that an average annual growth rate of 10.7 per cent can be expected in manufacturing for the period 1965 to 1970. (See Table 14.)

A comparison of the figures in Table 11 with the projections for selected branches of industry in Table 14 gives a coefficient of flexibility of 1.9. This in its turn gives a cumulative annual growth rate in industrial product of 9.2 per cent, assuming that there is a 6.5 per cent increase in gross national product; or, a 10.15 per cent annual growth rate in industrial product, in the case of a cumulative growth rate of 7 per cent in gross national product. To conclude, the objectives under both systems of analysis (that of selected branches and that of total aggregates) give a foreseeable 10 per cent growth rate in the product of manufacturing industry, which implies a 7 per cent annual share in the gross national product.

/Table 14

Table 14

MEXICO: PROJECTED GROWTH OF MANUFACTURING INDUSTRIES

(Millions of 1964 pesos)

Groups		Aggregate value						
		1964	1965	1966	1967	1968	1969	1970
20, 21 and 22.	Industries manufacturing food, beverages and tobacco	12 155	12 848	13 580	14 354	15 172	16 037	16 951
23.	Textile manufacture	4 614	4 794	4 981	5 175	5 377	5 587	5 804
24.	Manufacture of footwear, garments and other articles made from textile products	4 773	5 312	5 913	6 581	7 324	8 152	9 074
25.	Wood and cork industries, excluding furniture	1 425	1 501	1 580	1 664	1 752	1 845	1 945
27.	Wood pulp, paper, cardboard, and their products	1 239	1 343	1 456	1 578	1 711	1 854	2 010
28.	Printing, publishing, and associate industries	845	898	955	1 015	1 079	1 147	1 219
29.	Leather and leather products, excluding footwear	2 812	3 175	3 584	4 047	4 569	5 158	5 825
30.	Manufacture of rubber products	1 339	1 436	1 650	1 831	2 033	2 256	2 504
31.	Manufacture of chemicals and chemical products	8 004	8 804	9 685	10 653	11 719	12 890	14 180
32.	Non-metallic mineral products, excluding derivatives of coal and petroleum	2 234	2 428	2 640	2 869	3 119	3 390	3 685
34.	Steel, and manufacture of metal products, excluding machinery and transport equipment	7 971	9 111	10 452	11 934	13 653	15 618	17 868
36.	Machinery construction	5 902	7 041	8 400	10 021	11 955	14 263	17 015
38.	Construction and repair of transport equipment	2 496	2 781	3 098	3 451	3 844	4 282	4 770
39.	Other manufacturing industries	880	959	1 046	1 140	1 242	1 354	1 476
	Total	56 689	62 489	69 000	76 313	84 549	93 833	104 322
					1964-70 = 10.7%			

Source: Banco de México, S. A.
Government Department for Industry.

/3. Characteristics

3. Characteristics of foreign trade with reference to the manufacturing sector

In the course of the last fifteen years, Mexico's flow of foreign trade has been growing at an annual rate of 4.5 per cent. During this period, imports went up from 659 to 1,372 million dollars, while exports increased from 626 to 1,014 million dollars, which gives a faster annual growth of imports (5.4 per cent) than in the case of exports (3.3 per cent). Foreign trade as a whole accounts for little less than 10 per cent of gross national product.

The deficit in Mexico's foreign trade balance is not only the characteristic of this country, but typical of economies which, like Mexico's, recently began their general development and still depend to a large extent on supplies from abroad to reinforce their internal structuring. Moreoever, in the past, exports have been made up almost completely of raw materials, although during the last five years, efforts have been made to remedy this situation.

Approximately 70 per cent of the value of foreign trade is carried out with the United States of America, and 70 per cent of the value of exports is represented by 17 primary commodities. This has led to efforts at diversification of traded goods and at increasing the number of countries with which trading is carried out, with the aim of minimizing the effects of any economic fluctuations which may take place abroad.

In the course of the last fifteen years, Europe received 12 per cent of Mexico's exports; Asia received 1 per cent in 1950, and in 1964 the figure reached 10 per cent; Africa receives less than 1 per cent; Oceania approximately 1 per cent; the United States of America 70 per cent; and Latin America 7 per cent.

(a) Imports

In the period under consideration, total imports almost doubled, with an annual average growth of 5.4 per cent. The nature of these imports underwent considerable changes.

In 1950, consumer goods accounted for a little less than 25 per cent, falling to 15 per cent in 1955, and increasing to a little over 20 per cent in 1964. This is one of the effects of a clearly marked tendency on the part of durable consumer goods to increase their share within the subtotal. It was thus that in 1950 they accounted for a mere 43 per cent while in 1964 they accounted for a much greater proportion, having leapt to 65 per cent, with an annual growth of 7.4 per cent; this reflects the country's shortage of this type of commodity. On the other hand non-durable consumer goods have been at a relative standstill, reflected in the very low growth rate during the period - 1 per cent.

Producer goods during the same period increased their share in total imports; in 1950 they accounted for 75.9 per cent, and in 1964 for 78.8 per cent, and their 5.6 per cent annual growth rate enabled them to more than double their value. It must also be noted that imports of raw materials, etc., increased at a quicker rate than imports of equipment and machinery; while the former item registered an annual rate of 6.3 per cent, the latter reached 5.2 per cent, in spite of the fact that in 1950 the starting point of the value of investor goods was 59 per cent, a figure which fell to 56 per cent in 1964. (See Table 15.)

The nature of imports varied considerably during the period under consideration as a result of the selective policy which was carried out, and which has also enabled currency reserves to be kept up and the foreign trade deficit to be reduced appreciably. As far as imports of consumer goods are concerned, particularly non-durable, it is worth mentioning the fact that 50 per cent belongs to Mexico's free-trade areas and zones.

The general nature of imports shows that Mexico is mainly purchasing articles necessary for its growth, which reflects the policy of internal industrialization and the awareness of import substitution, to the extent demanded by national requirements.

The tendency noted among durable consumer goods and producer goods shows development of the economy towards greater levels of diversification both in consumption and production, and at the same time the influence that these new conditions will have on the framework of imports over medium and long-term periods.

/Table 15

Table 15

MEXICO: IMPORTS OF GOODS ACCORDING TO ECONOMIC GROUPS

(Millions of dollars)

Groups	1950	1955	1960	1961	1962	1963	1964
I. Consumer goods	159	131	218	220	219	275	291
(Percentages)	(24.1)	15.3	18.4	19.6	19.5	22.6	21.2
A. Non-durable	90	50	72	71	75	112	103
B. Durable	69	81	146	149	144	163	188
II. Producer goods	500	723	967	904	905	941	1 081
(Percentages)	(75.9)	84.6	81.6	80.4	80.5	77.4	78.8
C. Raw and secondary materials	203	328	396	368	374	409	476
D. Investor goods	297	395	571	536	531	532	605
Total	659	854	1 185	1 124	1 124	1 216	1 372

Source: Foreign-Trade Statistical Yearbook, BANCOMEX.

As an example, there are commodities whose individual or collective value represent the bulk of raw materials and of producer goods, of which the economic density per unit is far higher than the values per unit of the country's exports. (Table 16.)

The general import situation shows the need to establish priorities in foreign trade, as income from exports is not sufficient to finance purchases, and income from other sources, e.g. tourism, etc., must be stepped up.

(b) Exports

Several factors affected the increase registered in exports: (a) the industrialization process which, supported to a great extent by foreign trade policy itself, had a visible effect on the diversification of export items; (b) the evolution of the agriculture and farming sector; (c) the world market and its price system, and (d) the increase in the exploitation of seaproducts.

/Table 16

Table 16

MEXICO: PRINCIPAL IMPORT PRODUCTS

(Millions of dollars)

Products	1950	1955	1960	1961	1962	1963	1964
Machinery installations	15	62	56	74	46	59	75
Motor vehicles, passenger-carrying	30	32	60	61	66	78	106
Spare parts for agriculture, mining, and crafts	29	3	50	49	50	42	42
Motor vehicles for goods transport	28	35	36	41	36	40	59
Petroleum and its products	11	30	43	34	39	38	35
Spare parts for motor vehicles	1	5	30	30	32	35	42
Machinery driven by mechanical means	30	26	52	28	12	9	8
Chemical fertilizers	-	8	25	23	18	18	23
Industrial preparations and compounds	8	7	12	15	18	19	22
Crude rubber, natural or synthetic	7	14	20	18	18	20	14
Tractors	16	21	22	18	17	24	35
Rolling stock for railways	3	6	10	16	9	6	9
Iron or steel ingots, pieces and waste from containers	3	2	16	15	10	15	31
Locomotives for railways	-	1	22	15	16	20	30
Spare parts for tractors	4	9	15	15	15	20	18
White paper for newsprint	5	7	14	12	14	13	15
Machine tools for metal industries	-	-	-	6	12	16	35
Engines for motor vehicles and parts	16	22	10	12	6	8	9
Natural or synthetic resins	3	6	12	13	10	15	15
Wool	8	12	10	10	11	12	21
Chassis for motor vehicles	2	3	15	10	9	15	14
Iron and steel tubes and fittings	16	11	10	10	-	-	6
Antibiotics and pharmaceutical products	-	3	13	8	10	16	12
Rollers and shapers	6	8	10	9	8	13	14
Insecticides, parasiticides, and fumigants	6	13	9	9	15	13	15
Spare parts for aircraft	1	3	13	8	1	9	10
Rails	9	12	22	8	12	9	17

Source: Foreign-Trade Statistical Yearbook, BANCOMEX.

The 3.3 per cent annual growth rate for exports is only a partial indication of events, for attention must be drawn to the fact that they increased by a mere 14 per cent between 1950 and 1960, compared with the total of 62 per cent for the whole period under review. This is due to their extreme sensitivity to any type of fluctuation which takes place in more developed economies.

Mention must be made, however, that in spite of such conditions the exports situation has undergone changes so considerable that consumer goods, principally of the non-durable type increased from 25 per cent of the total to 49 per cent in this period; i.e. they developed at annual growth of around 8.5 per cent, a rate which is far higher in the last five-year period.

On the other hand, the growth in exports of producer goods, an annual average rate of 0.7 per cent, gives a very clear picture of the relative decline as exports items, which also goes to show that exports of non-renewable materials and resources or those of low density per unit, have been reduced to a minimum.

Exports of investor goods, which are still of very small proportions, increased to account for 3 per cent of the grand total and for 6.6 per cent of exports of producer goods. (See Table 17.)

Table 17

MEXICO: EXPORTS OF GOODS ACCORDING TO ECONOMIC GROUPS

(Millions of dollars)

Groups	1950	1955	1960	1961	1962	1963	1964
I. Consumer goods	159	211	320	346	374	377	501
(Percentages)	(25.4)	(27.9)	(43.5)	(43.2)	(41.6)	(40.8)	(49.4)
A. Non-durable	151	203	310	335	360	360	481
B. Durable	8	8	10	9	14	17	20
II. Producer goods	467	546	416	455	526	548	513
(Percentages)	(74.6)	(72.1)	(56.5)	(56.8)	(58.4)	(59.2)	(50.6)
C. Raw and secondary materials	463	535	399	433	506	515	480
D. Investor goods	4	11	17	22	20	33	33
Total	626	757	736	801	900	925	1 014

Source: Foreign-Trade Statistical Yearbook, BANCOMEX.

In 1958, the number of products sold abroad to the value of 1 million dollars or more was 61; at present the number is 90. These exports are symptoms of the progress made in the process of industrialization. Basic export items: cotton, coffee, copper, lead, and zinc (see Table 18), accounted for 50 per cent of the value of exports in 1958, and dropped to 33 per cent in 1964. The adverse conditions prevailing in international market for primary products were also responsible for this change.

Table 18

MEXICO: FOURTEEN MAIN EXPORT PRODUCTS

(Millions of dollars)

Products	1950	1955	1960	1961	1962	1963	1964
Raw cotton	176	252	160	160	225	200	171
Coffee	57	81	74	74	73	59	88
Sugar, coarse and refined	3	6	54	68	43	60	77
Prawns	23	19	32	44	46	52	53
Bovine cattle	-	16	33	42	54	37	24
Lead bars and concentrates	83	52	31	34	24	25	23
Petroleum and its products	33	8	13	24	31	40	38
Sulphur	-	5	28	29	31	34	37
Zinc bars and concentrates	18	16	30	28	28	30	36
Hemp fibres	2	8	12	14	16	17	17
Copper bars and concentrates	5	41	20	17	21	21	14
Fresh or refrigerated meat	3	3	10	17	23	26	18
Vegetable preparations and preserves	-	-	11	16	19	18	27
Tomatoes	12	6	26	14	20	25	23

Source: Foreign-Trade Statistical Yearbook, BANCOMEX.

With the annual averages of the periods 1953-1958 and 1959-1963 taken as a basis, the following tendencies are observed: in volume exported cotton increased by 15.5 per cent, while its value, in falling from 203 to 186 million dollars, was reduced by 8.4 per cent. Cotton's share of total exports dropped from 29 per cent to 22.7 per cent between the two periods. The amount of coffee exported went up by 4 per cent, while its value dropped by 31.4 per cent, from 94.7 to 65 million dollars. Coffee's share of total exports fell from 13.6 to 7.9 per cent. Exports of lead fell from 52.5 to 31.6 million dollars, a drop in value of 39.8 per cent, while the volume of lead exported went down by only 19 per cent. Zinc was also subject to this tendency; its value fell by 5.4 per cent while its volume fell by a similar amount. Among mining products, copper exports suffered the biggest drop - a fall in value of 52.5 per cent.

This tendency can be illustrated in other terms by taking the average drop in export values between the period 1953-1957 and the period 1959-1963, which was: coffee, 36 per cent; raw cotton, 22.6 per cent; copper bars, 1.4 per cent; copper in concentrated minerals, 32.6 per cent; lead bars, 27.1 per cent; zinc in concentrated minerals, 3.4 per cent; and zinc bars, 12.2 per cent.

In short, the above-mentioned products, which produced an income of 2,195 million dollars for the country between 1953 and 1957, showed a drop of 24 per cent in the period 1959-1963 by producing 1,675 million dollars. If the policy of tending towards export diversification had not been successful, this downturn would have had adverse effects on the development of domestic economy.

The industrial sector was largely responsible for the changes brought about in the export situation. In 1958, exports of manufactures to the value of 143 million dollars accounted for 20 per cent of total sales; in 1963, by which time important branches of Mexican industry had undergone rapid expansion and concentration, manufactures were sold to the value of 289 milli dollars - an increase of 102 per cent over the 1958 figure. At the present time, a little over 30 per cent of total exports are accounted for by product of the manufacturing industry; it is important to point out that among these products, articles with a high degree of national materials are gradually coming to the forefront. Between 1958 and 1963, for example, sales of basic metals leapt from 5.6 to 28.2 million dollars - a 400 per cent increase; textiles went up by 83 per cent, with exports sales at 37.7 million dollars in 1963; food products, excluding sugar, went up by 250 per cent, with expor at 116 million dollars; and publishing, together with the paper and paper products industry, increased its 1958 exports by 218 per cent, with 17.9 million dollars' worth. (See Tables 19 and 20.)

/Table 19

Table 19

MEXICO: EXPORTS OF MERCHANDISE

(Annual averages in millions of dollars)

Item	1953-1958	1959-1963	Percentage variation
Total	695.6	820.1	17.9
I. Consumer goods	210.4	341.2	62.2
Sugar, refined and coarse	9.1	35.7	292.3
Prawns	21.2	43.7	106.1
Coffee	94.7	65.0	-31.4
Bovine cattle	15.3	40.6	165.4
Fresh and refrigerated meat	4.6	17.3	302.3
Tomatoes	12.0	21.6	80.0
Uncrystallizable honey	2.3	5.1	121.7
Cocoa	1.6	3.6	125.0
Printed books	2.6	3.5	34.6
Cotton fabrics	2.8	4.8	71.4
Peanuts, with and without shells	3.1	2.4	-22.6
Chick peas	2.4	1.1	-54.2
II. Producer goods	483.5	479.0	-0.9
Raw cotton	203.0	186.0	-8.4
Petroleum and its products	40.3	35.6	-11.7
Sulphur	11.2	29.2	160.7
Iron and steel products	5.2	12.4	138.5
Lead and concentrates	52.5	31.6	-39.8
Zinc and concentrates	29.5	27.9	-5.4
Copper and concentrates	51.2	24.3	-52.5
Fibres and yarn for sheafing	8.5	14.4	69.4
Natural and synthetic hormones	5.6	11.6	107.1
Calcium Fluorine	5.3	11.0	107.5
Hemp, fibres, yarn, string and rope	4.3	5.6	30.2
Hemp	3.8	5.5	44.7
Fodder	7.5	6.5	-13.3
Manganese	3.8	3.3	-13.2
Cotton waste	3.6	3.1	-13.9
Mercury	3.7	3.3	-10.8
Copper wire	1.9	0.8	-55.6
Bismuth	1.1	1.7	54.5

Source: National Foreign-Trade Bank; and Government Statistics Department.

Table 20

MEXICO: EXPORTS OF MANUFACTURES

(Thousands of dollars)

Item	1953-1958	Percentage of total	1959-1963	Percentag of total
Total	142 729.8	20.4	289 216.0	31.1
Food products	33 049.3	4.7	116 709.2	12.5
Beverages	510.2	0.1	1 206.2	0.1
Tobacco	12.0	0.0	115.2	0.0
Textiles	20 553.4	2.9	37 651.4	4.0
Footwear, garments, and other articles made from textile products	3 402.6	0.5	3 103.5	0.3
Wood and cork	2 658.3	0.4	4 431.6	0.5
Furniture and accessories	385.2	0.1	1 008.3	0.1
Paper and paper products	1 175.0	0.2	10 514.7	1.1
Books, magazines, and other articles of the publishing industry	3 516.9	0.5	7 381.8	0.8
Skin and leather products, excluding footwear and garments	230.4	0.0	1 390.6	0.2
Rubber products	390.7	0.1	225.6	0.0
Chemicals and chemical products	17 595.9	2.5	20 208.5	2.2
Products derived from coal and from petroleum	28 659.6	4.1	25 037.3	2.8
Non-metallic mineral products	8 713.4	1.2	10 988.6	1.2
Basic metal-products	5 641.4	0.8	28 157.6	3.0
Metallic manufactures	2 339.6	0.3	3 094.8	0.3
Machinery, non-electric	3 280.2	0.5	7 718.5	0.8
Electrical machinery, appliances, and articles	784.0	0.1	2 140.1	0.3
Transport material	6 777.3	1.0	2 778.8	0.3
Miscellaneous manufactures	3 057.4	0.4	5 373.6	0.6

Source: Government Department for Economic Studies.

/Chapter III

Chapter III

INDUSTRIAL GROWTH OF DIFFERENT SECTORS

1. The petroleum industry

The nationalized petroleum industry has made a considerable progress in integration and consolidation, and is becoming one of the most important bases of the country's economic development.

Since 1938, production has been increasing in response to the country's demand; the industry's supply has been such that the demand has been adequately met, and a certain margin has also been exported. It must be pointed out, however, that owing to technical reasons of production or of transport, some products have had to be imported. These imports have been reduced over the years and are now of little importance.

(a) Prospecting

Between 1950 and 1964, 157 new oilfields were discovered: prospecting, which includes geology and geophysical projects in several states, is being continued in as yet unproductive areas.

(b) Drilling

In 1950, 218 wells were drilled; in 1964, the figure was 631, while the highest figure for the decade was 762, in the year 1960. Of the wells drilled in 1950, 133 were productive, while in 1964, 443 were productive. Total drilling in 1950 amounted to 271,000 metres, and by 1964 had increased to 1,679,000 metres.

(c) Reserves

Total reserves in 1950 were 1,607 million barrels, which includes crude petroleum and natural gas; in 1964, these reserves amounted to 5,227 million barrels.

(d) Operation

73.9 million barrels of crude petroleum were extracted in 1950, while the 1964 figure reached 129.8 million barrels. In 1950, 1,762 million cubic metres of natural gas were extracted, and in 1964, 13,735 million cubic metres. These figures give an annual increase of 4.2 per cent in crude petroleum extraction, and an average annual increase of 15.8 per cent for extraction of natural gas.

/(e) Refining

(e) Refining

The capacity of refineries increased greatly from 1950 to 1964. In 1950, the topping capacity was 187,000 barrels per day, and the cracking capacity 26,000 per day. In 1964, the figures reached 504,000 and 127,000 per working day, respectively. This increase in capacity enabled 126.9 million barrels of crude petroleum to be refined in 1964, compared with 55.8 million barrels in 1950, an annual rate of increase in crude petroleum refining of 6.1 per cent.

(f) Consumption, imports and exports

In 1950, the domestic consumption of all kinds of petroleum products was 43.7 million barrels, while in 1964 the consumption was 98.6 million barrels an average rate of increase of 6.0 per cent. Imports accounted for 6.0 per cent of the consumption in 1950, and for 5.4 per cent in 1964. Exports fell from 23.6 million barrels in 1950 to 11.2 million in 1964.

(g) Employment

The total number of persons employed by PEMEX (Mexican Petroleum Company) in 1950 was 34,104, and in 1964 had increased to 50,367.

(h) Petrochemical plants

The history of the Mexican petrochemical industry can be summed up as follows: 1940, the manufacture of lead tetraethyl; 1942, the recovery of sulphur from bitter gas; 1944, the recovery of carbon dioxide from natural gas; 1948, the first ammonia plant, new plants have since been constructed. In 1958, the dodecylbenzene plant in Ascapoltzalco, F.D., was inaugurated together with the high octane gasoline plants through processes of halogenation and alkylation; in 1961, a catalytic polymerization plant for processing tetramer began operation; in the same year the anhydrous ammoniac plant in Minatitlán, Ver., was finished; in 1962, the anhydrous ammoniac plant in Salamanca, Gto., was finished; in 1963, an aromatics plant began operation in Minatitlán, and in Ciudad Madero another dodecylbenzene plant was finished, etc.

In 1964 the country already had 30 petrochemical plants for basic products, the manufacture of which is in the hands of the government. The most important products are: ammonia, ammonium sulphide, sulphur, dodecylbezene, aromatics, acetaldehyde, ethylene, ethylene oxide, butadiene, methanol, styrene-butadine, urea, and ammonium nitrate.

/In the

In the same year, the number of petrochemical plants in which private enterprise can participate either alone or with government partnership, had reached 48. These plants manufacture some 120 products, the most important of which are: urea, carbon black, nitrogenous and phosphate fertilizers, acetic acid and anhydride, acetates, acetone, butanol, polyester fibres, glicols, benzoates, epoxy resines, caprolactam, ethalolamine, phthalic anhydride, lead tetraethylene, cellulose acetates, formaldhyde, active agents, etc. (See Table 21.)

2. Electrical power

The Mexican electrical industry has undergone radical changes in the course of the last decade. Government participation increased during this period, particularly with the purchase of the assets of the "Company for the Promotion of Electrical Enterprises", and of the "Mexican Light and Power Corporation" in 1960. The electrical industry for public service is now entirely under control of the Government, which is responsible for investment planning in the industry, and for the administration of the service, mainly through the "Federal Electricity Commission", the "Central Mexican Light and Power Corporation", the "Mexican Electrical Industry Corporation", and the "Chapala Hydroelectric Company".

In 1964, 65.3 per cent of the total installed capacity in the country belonged to the "Federal Electricity Commission"; 12.7 per cent to the "Central Mexican Light and Power Corporation"; 6.7 per cent to the "Mexican Electrical Industry Corporation"; 2.5 per cent to the "Chapala Hydroelectric Company", and 12.8 per cent to other enterprises of autoconsumption.

The four state companies combined accounted for 87.2 per cent of the total installed capacity.

(a) Installed capacity

In 1950, the installed capacity amounted to 1,235,000 kW, and in 1964, 5,271,000 kW, an annual average increase of 10.9 per cent. In 1950 hydroelectric stations provided 49.1 per cent of the installed capacity, and thermal stations provided 50.9 per cent. In 1964 the percentages were 42.3 per cent for hydroelectric stations, and 45.9 per cent thermal stations.

/Table 21

Table 21

MEXICO: PETROLEUM INDUSTRY STATISTICS

Items	Units	1950	1955	1960	1961	1962	1963	1964
1. **Prospecting**								
Prospecting groups	Units	36	47	44	37	34	34	40
Oilfields discovered	Units	4	14	14	7	18	10	10
2. **Drilling**								
Wells drilled	Units	218	330	762	726	639	554	631
Test wells	Units	33	74	103	106	76	70	83
Operational wells	Units	185	256	659	620	563	484	548
Productive wells	Units	133	224	578	513	477	386	443
Total depth	**1 000 metres**	271	546	1 605	1 609	1 597	1 403	1 679
3. **Reserves**								
Crude and refined	1 000 barrels	1 126	1 703	2 763	2 764	2 775	2 936	2 925
Natural gas a/	1 000 barrels	481	1 047	2 024	2 225	2 232	2 214	2 302
Totals	**1 000 barrels**	1 607	2 750	4 787	4 990	5 007	5 150	5 227
4. **Operation**								
Crude, refined, etc.	1 000 barrels	73 881	91 370	108 772	116 820	121 563	125 829	129 864
Natural gas	Millions cubic m.	1 762	3 392	9 665	10 210	10 516	11 371	13 735
5. **Refining**								
Capacity of refineries								
Topping b/	1 000 barrels	187	269	393	401	410	469	50
Cracking b/	1 000 barrels	26	31	79	105	103	109	12
Crude petroleum processed in one year	1 000 barrels	55 825	80 506	107 279	118 961	118 452	119 611	126 17
6. **Distribution**								
Total sales	**1 000 barrels**	67 261	79 097	89 732	104 177	106 360	108 811	115 81
Domestic	1 000 barrels	43 697	53 263	81 896	89 019	88 022	90 088	98 65
Exports	1 000 barrels	23 564	25 834	7 836	15 158	18 338	18 723	11 16
7. **Consumption**								
Total consumption	1 000 barrels	57 782	77 534	101 999	111 874	107 235	110 469	116 9
PEMEX sale c/	1 000 barrels	47 450	63 809	85 488	90 677	89 109	90 675	97 0
PEMEX internal consumption	1 000 barrels	6 877	9 282	13 492	17 864	13 960	14 491	13 5
Imports	1 000 barrels	3 455	4 443	3 019	3 333	4 166	5 303	6 9
8. **Employment**								
Employed persons	Units	34 104	43 352	46 757	46 158	47 365	49 605	50 3
Permanent staff d/	Units	22 117	26 537	30 018	31 134	31 830	32 858	33 4
Temporary staff e/	Units	11 987	16 815	16 739	15 024	15 535	16 747	16 8

Source: Mexican Petroleum Company.

a/ Thermic equivalent of gas expressed in barrels of liquid.
b/ Amounts per working day.
c/ Includes sales of products imported by PEMEX.
d/ Number of employed persons at the end of the year.
e/ Annual average of temporarily-employed persons.

/(b) Power generate

(b) Power generated

In 1950, 4,423 million kWh were generated, compared with 15,748 million kWh in 1964 an annual average increase of 9.5 per cent. Hydroelectric stations accounted for 44.1 per cent of the power generated in 1950, and thermal stations for 55.9 per cent. In 1964, these percentages were 43,6 and 56.4, respectively.

(c) Imports

In order to supply certain frontier communities in the north of the country, 125 million kWh were imported in 1950, and 158 million kWh were imported in 1964.

(d) Consumption

The total consumption of electric power was 4,187 million kWh in 1950, and 13,292 million kWh in 1964 an annual increase of 8.7 per cent. Imports accounted for 3.0 per cent of total consumption in 1950, and for 1.2 per cent in 1964. Consumption *per capita* increased from 160 kWh in 1950 to 375 kWh in 1964 a 6.3 per cent annual increase

(e) Productivity of equipment

Productivity of electrical equipment, calculated on the ratio between the amount of kilowatt-hours generated and installed capacity,, was fairly constant until 1963. During 1964 it increased to 5,698 kWh/kW, equivalent to 65.0 per cent utilization. (See Table 22.)

3. The construction industry

According to available indexes, the construction industry has developed at an annual rate of 7.6 per cent. Taking the index 1950=100, in 1964, a figure of 292.8 had been reached. The construction industry's gross domestic product increased from 2,625 million pesos in 1950 to 8,310 million pesos in 1964 (both figures at 1964 prices). Construction accounted for 3.2 per cent of gross national product in 1950, for 3.5 per cent in 1960, and for 3.7 per cent in 1964.

/Table 22

Table 22

MEXICO: ELECTRIFICATION STATISTICS

Item	1950	1955	1960	1961	1962	1963	1964
Installed capacity (in 1 000 Kw)	1 235	1 929	3 021	3 275	3 564	4 243	5 271
In hydroelectric stations	607	922	1 328	1 333	1 564	1 573	2 230
In thermal stations	628	1 007	1 693	1 942	2 000	2 670	3 041
For public service	916	1 451	2 308	2 435	2 724	3 369	4 387
For private service	224	365	614	726	729	764	730
For mixed service	95	113	99	114	111	110	154
Federal Electricity Commission	167	603	1 161	1 390	1 661	2 212	3 443
Mexican Light and Power Corp.	378	490	635	667	667	667	667
Mexican Electrical Industry Corp. a/	197	204	332	341	341	358	351
Others	493	632	893	877	895	876	879
Power generated (millions of Kwh)	4 423	7 002	10 636	11 747	12 507	13 707	15 748
In hydroelectric stations	1 949	3 447	5 197	5 032	5 345	5 803	6 866
In thermal stations	2 474	3 555	5 439	6 715	7 162	7 904	8 882
For public service	3 549	5 616	8 524	9 448	10 112	11 111	12 959
For private service	874	1 386	2 112	2 299	2 395	2 596	2 789
Federal Electricity Commission	438	2 025	4 215	4 076 e/	4 978 e/	6 248	8 430
Mexican Light and Power Corp.	1 663	2 147	2 148	3 154	2 989 e/	3 110	2 600
Mexican Electrical Industry Corp. a/	991	998	1 229	1 423	1 390 e/	1 377	1 439
Others	1 361	1 832	3 044	3 094	3 150	3 081	2 869
Imported Power	125	302	558	603	638	646	158
Power consumed b/	4 187	6 789	10 354	11 337	11 437	12 194	13 292
Consumption per capita c/	160	223	294	310	307	313	375
Productivity of equipment d/	3 581	3 630	3 521	3 587	3 509	3 257	5 698

Source: National Finance Corporation, Department of Financial Studies, with information provided by the Statistics Department of the Federal Electricity Commission.

a/ Formerly Nafin Electrical Enterprises.
b/ Power generated plus imported power, minus transmission losses.
c/ For 1962, estimated power consumption per capita.
d/ Kilowatt-hours generated per installed kilowattage.
e/ Net power generated.

/Both privat

Both private and public investment have contributed towards this increase, with varied types of construction. Private investment in construction accounted for 23 per cent of the total fixed investment of the private sector in 1964, which amounted to 17,905 million pesos. The value of private construction increased from 862 million pesos in 1950 to 4,116 million pesos in 1964, which represents, at current prices, an annual growth rate of 11.7 per cent.

Public works experienced great development during the years under consideration here. The Secretariat of Public Works invested huge sums in public money offices, post and telegraph offices, government buildings, micro-wave communications systems, public offices, road-transport terminals, federal airports, railways and roads. In order to appreciate this, the following statistics are given: in 1950 there were 4,231 post offices, 1,144 telegraph offices, 13,585 kilometres of paved roads, and 23,300 kilometres of permanent way; in 1964 the number of post offices was 4,987, there were 1,825 telegraph offices, 33,000 kilometres of paved roads and 23,793 kilometres of permanent way.

The agricultural census of 1960 gave a total irrigated area of 3,408,439 hectares, which was 14.3 per cent of the workable area at the time of the census. Between 1961 and 1964, the area under irrigation increased by 214,875 hectares, 75,368 of which were added by the irrigation works constructed in 1964, giving a grand total of 3,623,314 hectares. In 1960, the National Housing Institute constructed 3,679 houses and the National Mortgage Bank made loans to the value of 675.0 million pesos for the construction of works such as drainage, water, paving, public markets, slaughter houses, housing etc.

4. The manufacturing industry (selected consumer goods)

(a) Sugar

The sugar industry at present has 72 refineries, with a total production capacity of 3.2 million tons of sugar per season. During the 1964-1965 season, there were 412,744 hectares of sugar cane under cultivation, and the area harvested was 369,412.5 hectares.

/The 1949-1950

The 1949-1950 season produced 618,000 tons of sugar, while the 1964-1965 season produced 1,789,000 tons an annual rate of increase of 7.9 per cent. White refined sugar accounted for approximately 72 per cent of the 1964-1965 crop, and coarse sugar for the remaining 28 per cent.

Of the total available sugar in 1950, 584,000 tons were consumed at home, and 21,000 tons were exported. In 1964, home consumption amounted to 1,310,000 tons, and exports to 485,000 tons. A comparison of the figures for home consumption gives an annual growth rate of 5.9 per cent. Although the 1965 exports were far higher than the 1950 figure, they have not reached the maximum export figure of 1961 which was 586,251 tons. (See Table 23.)

(b) Beer

At present there are 19 breweries distributed among 11 of the country's 32 states. There are also 7 malt factories which supply the beer industry with raw materials. The raw materials utilized are produced in the country, with the exception of hops which are imported entirely from abroad. It is important to point out that the beer industry is one of the oldest in the country, and has motivated the setting up and development of related industries as varied as the production of: malt, bottles, bottle tops, cardboard boxes, and packages, ice, ice and refrigeration plants, carbonic acid gas, rolled steel product, tin containers, barley cultivation, etc., to mention the most important.

Between 1950 and 1964, production of beer in the country rose from 500.6 to 965.7 million litres an average annual increase of 4.8. Of the 1964 production, 95 per cent was bottled, 3 per cent was barrelled, and 2 per cent was canned.

Apparent consumption has tended to follow production. For example, the apparent consumption for 1950 was 500 million litres, and in 1964 was 962.6 million litres. Consumption *per capita* over the same period increased from 19.1 to 23.8 litres. (See Table 24.)

(c) The textile industry

In spite of the large number of factories in Mexico for spinnning and weaving artificial fibres, wool, hard fibres and special fabrics, the cotton industry remains the most important, since it makes use of approximately 40 per cent of the personnel, wages and salaries paid, and value of productio

/Table 23

Table 23

MEXICO: SUGAR PRODUCTION AND CONSUMPTION

(Thousands of tons)

Year	Available amounts			Distribution		
	Stocks at Jan. 1st.	Production	Total	Domestic consumption	Exports	Stocks at Dec. 31st.
1950	47	618	665	584	21	60
1955	204	886	1 090	802	77	211
1960	419	1 426	1 845	1 031	432	382
1961	382	1 404	1 786	1 063	585	138
1962	138	1 441	1 579	1 149	364	66
1963	66	1 638	1 704	1 207	389	108
1964	108	1 789	1 897	1 310	485	102

Source: National Union of Sugar Producers, Department of Economic Studies.

a/ Includes 31 302 tons and 16 494 tons imported in 1956 and 1957, respectively.

Table 24

MEXICO: BEER PRODUCTION AND CONSUMPTION

(Thousands of litres)

Year	Production	Apparent consumption a/	Consumption per capita (litres)
1950	500 608	499 937	19.1
1955	678 327	677 676	22.3
1960	852 499	851 432	27.8
1961	840 331	839 365	23.3
1962	858 588	855 722	23.1
1963	849 581	846 855	22.1
1964	965 702	999 743	23.8

Source: National Association of Beer Manufacturers.

a/ Production plus imports, minus exports.

The cotton industry has 300 factories, the majority of which are integrated with spinning, weaving, and finishing processes, and which have 1,416,000 spindles and 41,934 looms. Apart from this, there are 8,000 wooden looms which are not considered within the industry, but as artisan industries. The cotton industry at present employs 46,500 employees and workmen.

Although the number of spindles and looms has not increased considerably since 1950, it must be pointed out that the enterprises have made efforts at modernizing the obsolete equipment, a process which cannot be seen in the figures given. Since the second World War, textile entrepreneurs have been modernizing their factories, and the task is still not finished; even now many factories are operating with antiquated equipment. It thus occurs that 60 per cent of the machinery used in the cotton industry at the present time is modern; in the woollen industry, 50 per cent of the machinery is modern, and for the manufacture of artificial fibres, 96 per cent is modern.

Cotton consumption increased from 72,145 tons in 1950 to 133,762 tons in 1964. The production of cotton fabrics increased at the rate of 4,5 per cent annually by increasing from 64,980 tons in 1950 to 120,386 tons in 1964.

Imports of cotton are negligible, but exports reached 6,160 tons in 1950, falling off to 2,063 tons in 1964.

The apparent consumption of cotton textiles in Mexico increased 96.8 per cent in 1964, i.e. somewhat more that the increase in production, which was 63 per cent, showing that in view of the loss of foreign market the cotton industry turned towards the domestic market. (See Table 25.)

The woollen industry, because of the country's climate and habits, has a small share in the textile industry in general. In 1950, the production was 5,684 tons, and in 1963 it was 8,390 tons an increase of 47.6 per cent.

It is important to point out that both exports and imports of finished woollen goods are negligible, but imports of washed and unwashed wool, however, reached the figure of 258 million pesos and 11,444 tons in 1964.

The textile industry of artificial and synthetic fibres is relatively new, its products have replaced those which were previously made of silk, Products of this industry are made of the following fibres: rayon, acetate, nylon, polyester, acrylic, etc., which have found ready markets, and it can be claimed that they are gaining ground on products manufactured with natural fibres. In 1950, the production of these articles was 15,908 tons, and in 1963 was 27,615 tons an increase of 73.6 per cent. (See Table 26.)

/ Table 25

Table 25

MEXICO: COTTON TEXTILE INDUSTRY

Item		1950	1955	1960	1961	1962	1963	1964
Equipment								
Installed spindles	Thousands	1 109	-	1 213	-	1 300	-	1 416
Installed looms	Units	37 167	-	40 194	-	40 194	-	41 934
Raw material								
Cotton consumed	Tons	72 145	83 932	116 485	119 863	122 140	128 247	133 762
Production and distribution								
Production of cotton fabrics	Tons	65 649	72 027	101 575	102 447	109 926	115 422	120 386
Imports	Tons	1 401	852	184	343	143	209	211
Total availability	Tons	67 050	72 869	101 759	102 790	110 069	115 631	120 597
Exports	Tons	6 160	1 416	845	1 878	5 763	4 352	2 063
Available for domestic consumption	Tons	60 890	71 453	102 604	100 912	144 906	111 279	118 534
Employment								
Employees and workmen	Persons	50 778	46 588	46 500	46 500	46 500	46 500	46 500

Source: Estimations of the Department of Financial Studies, National Finance Corporation.

/Table 26

Table 26

MEXICO: PRODUCTION OF ARTIFICIAL FIBRES

(Tons)

Years	Total production	From cellulose				Nylon
		Filament	Staple fibre	Cord	Waste	
1950	8 106	7 729	215	-	162	-
1951	10 583	9 425	977	-	181	-
1952	12 725	10 437	2 028	-	260	-
1953	10 068	7 854	2 078	-	136	-
1954	13 732	9 784	3 648	-	300	-
1955	16 746	10 908	5 538	-	300	-
1956	20 279	12 279	6 114	2 015	99	-
1957	17 421	8 818	6 533	1 835	70	165
1958	19 953	9 165	7 397	2 967	143	281
1959	22 592	11 098	7 151	3 524	381	438
1960	23 261	12 084	6 915	3 376	222	664
1961	23 614	10 920	7 530	2 947	960	1 257
1962	25 225	11 602	7 379	3 011	320	2 913
1963	29 694	12 269	8 876	2 861	325	4 363
1964	33 009	13 122	10 132	3 828	313	5 614

Source: Department of Financial Studies, National Finance Corporation.

The apparent consumption per capita of textile products made from soft fibres had only slight variation in the period 1950-1963. In 1950, the consumption was 3.18 kg. and in 1963 only 3.48 kg. the major part of which was accounted for by cotton articles (in 1950, 2.3 kg, per capita, and in 1963, 2.6 kg.). The per capita consumption of woolen articles not only failed to increase, but was reduced from 0,22 kg, in 1950 to 0.21 kg, in 1963. The consumption per capita of artificial fibres was subject to a slight increase from 0.63 kg, in 1950 to 0.69 kg, in 1963.

5. The manufacturing industry (producer goods)

(a) The steel industry

The Mexican steel industry is made up of 3 integrated enterprises, 5 semi-integrated, and 48 non-integrated plants. The first category refers to those plants which produce pig iron, or sponge iron, steel, and which also have rolling mills to manufacture articles of intermediate use such as plates, rolled products, tin plate, shapes, etc. The second category includes the plants which do not produce pig iron or sponge iron, but which have steel producing furnaces and rollers. In the third type are the plants which roll steel ingots.

The integrated plants are "Altos Hornos de México, S.A.", the "Compañía Fundidora de Fierro y Acero de Monterrey, S.A.", and "Hojalata y Lámina, S.A.".

The country's total steel-producing capacity is estimated at 2,700,000 tons, more than half of which comes from the three plants mentioned above.

The production of steel ingots increased at the rate of 13.6 per cent annually between 1950 and 1964, the figures being 390,356 tons, and 2,326,496 tons respectively. To manufacture the steel a production of 227,432 tons of pig iron was needed during 1950, and of 1,128,814 tons of cast and sponge iron during 1964. The growth rate of these products was 12.1 per cent during this period.

Of the principal intermediate products, steel-plate production rose from 36,424 tons in 1950, to 232,303 tons 1964 an annual increase of 14.15 per cent. Production of rolled products went up from 78,202 tons

/in 1950

in 1950 to 489,374 tons in 1964 an annual growth rate of 14.0 per cent. Tin plate production increased by 15.6 per cent annually by rising from 11,785 tons in 1950 to 89,033 tons in 1964.

One of the most important products for final consumption has been seamless tubing, the production of which began in 1954. From that date up to 1964, production increased from 5,352 tons to 141,624 tons an annual rate of increase of 39 per cent.

Imports in terms of steel ingots fell from 361,868 tons in 1950 to 276,830 tons in 1960. The highest amount of purchases abroad during the period was 637,042 tons in 1957.

On the other hand, it is extremely important to point out that exports of steel products have leapt amazingly. In 1950, only 5,351 tons of products in terms of steel ingots were sold abroad, while in 1964 the figure was 148,450 tons. These figures mean that exports of steel products grew at an annual rate of 26.5 per cent during the period.

Finally, the apparent consumption in terms of steel ingots rose from 746,873 tons in 1950 to 2,454,876 tons in 1964 an average growth rate in consumption of 8.2 per cent. (See Tables 27 and 28.)

(b) The chemical industry

The Mexican chemical industry has developed considerably during the past 15 years. This development can be measured by the increases in production which have taken place, by the large numbers of new factories, and by the diversification of the lines of production.

The most important of the industry's basic products are sulphuric acid, caustic soda, synthetic fibres, aromatics and fertilizers. In secondary production there are hormones, antibiotics, titanium bioxide, phthalic anhydride, paint fixers, plastics and resines, dodecylbenzene and sodium sulphate, etc.

In order to express the industry's development briefly, 5 products were selected which because of their multiple uses or their influence in general economic activity, are representative of this development.

/Table 27

Table 27

MEXICO: STEEL INDUSTRY PRODUCTION

(Tons)

	1950	1955	1960	1961	1962	1963	1964
Primary materials							
Pig iron	227 432	327 917	669 265	757 759	801 324	833 118	926 263
Sponge iron	-	-	114 832	173 891	165 647	169 135	202 551
Iron alloys	-	-	16 275	26 156	25 739	25 917	42 568
Steel ingots	390 356	712 982	1 491 778	1 693 076	1 710 662	2 016 883	2 326 496
Intermediate products							
Plates	36 424	72 898	154 466	132 145	85 559	192 921	232 303
Rolled products	78 202	170 266	281 492	272 072	317 094	385 434	489 734
Tin plate	11 785	24 517	62 044	67 758	72 573	85 424	89 033
Skelp	-	-	27 842	56 376	10 296	42 197	30 071
Wire rod	b/	28 490	119 095	127 998	139 500	136 414	171 331
Products for direct consumption							
Seamless tubes	-	15 816	123 181	109 043	120 150	127 140	141 624
Welded tubes	b/	42 930	125 867	123 912	93 659	146 336	141 738
Cast tubes	b/	13 257	2 306	4 797	2 646	-	-
Structural shapes	b/	45 744	48 473	61 386	50 300	60 628	69 733
Merchant mill shapes	b/	60 361	110 642	116 046	129 798	125 982	165 472
Wrinkled rods	b/	111 192	228 485	246 644	254 392	309 068	333 731
Rails	b/	20 571	23 126	11 256	8 760	16 830	12 294
Others a/	177 975	-	-	-	-	-	-

Source: National Chamber of the Iron and Steel Industry.

a/ Includes all rolled products from 1950 to 1962. As from 1953, figures are given under their respective headings.

b/ Figures included in item "Others".

/Table 28

Table 28

MEXICO: APPARENT CONSUMPTION OF STEEL [a]

(Tons)

Year	Production	Imports	Exports	Apparent consumption
1950	390 356	361 868	5 351	746 873
1955	712 982	422 590	9 017	1 126 555
1960	1 491 778	400 293	30 320	1 861 751
1961	1 693 076	280 784	75 441	1 898 419
1962	1 710 662	261 844	73 192	1 889 314
1963	2 016 883	238 994	234 497	2 021 380
1964	2 326 496	276 830	148 450	2 454 876

Source: National Finance Corp., Department of Financial Studies, with information supplied by Mexican Blast Furnace Co. and by the National Chamber of the Iron and Steel Industry.

[a] In terms of steel ingots.

Production of sulphuric acids is at a high level. In 1964 there were 15 manufacturing plants, with an installed capacity of 597,000 tons an increase of 760 per cent over the installed capacity of 63,145 tons in 1950. Production increased from 43,374 tons in 1950 to 439,728 tons in 1964 an annual average rate of increase of 18 per cent. Imports have never been significant, and since 1960 no sulphuric acid at all has been imported. (See Table 29.)

Caustic soda manufactured in 8 plants which have a combined installed capacity of 100,000 tons. Their production increased from 8,440 tons in 1950 to 95,800 tons in 1964 an annual average increase of 17.5 per cent. Imports fell from 29,189 tons in 1950 to 24,214 tons in 1964. Apparent consumption went up from 37,629 tons in 1960 to 119,100 tons in 1964. (See Table 30.)

/Table 29

Table 29

MEXICO: PRODUCTION AND CONSUMPTION OF SULPHURIC ACID

(Tons)

Year	Installed capacity	Production	Apparent consumption
1950	63 145	43 374	43 754
1955	161 200	124 887	133 537
1960	340 230	248 828	249 248
1961	345 180	275 984	276 195
1962	420 420	338 891	338 951
1963	526 878	387 370	387 425
1964	665 188	439 728	439 878

Source: Department of Financial Studies of the National Finance Corp., with research data supplied by the Government Statistics Department.

Table 30

MEXICO: PRODUCTION AND CONSUMPTION OF CAUSTIC SODA

Year	Production	Imports	Apparent consumption
1950	8 440	29 189	37 629
1955	22 909	30 496	43 028
1960	65 888	24 324	90 212
1961	71 338	20 375	91 713
1962	83 425	18 456	101 881
1963	90 565	13 153	103 718
1964	94 886	24 214	119 100

Source: Department of Financial Studies of the National Finance Corp., and Government Statistics Department.

One of the main obstacles to the development of the caustic soda industry has been the problem of utilizing chlorine. However, a solution has been found in the production of ethylene glycol, pentachloro-phenol 2-4 dichlorophenoxiacetic acid, solvents, toxaphene, etc.

In 1962 the installation of the petrochemical complex "Sales y Alcalis, S.A." in Pajaritos, near Coatzacoalcos was begun. The plant will produce caustic soda and chlorine, the latter to be used in the production of ethyl fluid (lead tetraethyl).

In 1964, three different projects were continued concerning the manufacture of cellulose acetate, polystyrene (isolating varnishes) and polyester fibres and their polymer.

In 1965, 5 further projects were added to manufacture the following raw materials: acrylic, polyvynilic, polystyrene, polyethylene, and caprolactan fibres, which will produce sufficient in 1968 to cover the greater part of the medium-term manufacture of synthetic and chemical fibres.

The total production of synthetic fibres was 8,106 tons in 1950 and 33,009 tons in 1964, which gives an annual growth rate of 10.5 per cent.

Artificial fibres from cellulose account for the greater part of this production as nylon accounted for only 17.0 per cent of the total during 1964.

Up to the end of 1963 the only source of aromatic products were the by-products of the manufacture of coke from coal, which gives an idea of the limits in supply. However, at that time the aromatics plant of the Mexican Petroleum Company in Minatitlán began to operate. This plant produces important amounts of benzene, toluylbenzene, xylene and their compounds. The country's production in 1964 was 35,659 tons, which is an average increase of 9.2 per cent over the 10,417 tons produced in 1950. The industry's principle products are coal, tar-pitch, naphthalene, creosote, and refined benzene product. (See Table 31.)

/Table 31

Table 31

MEXICO: PRODUCTION, IMPORTS, AND CONSUMPTION OF COAL-TAR DERIVATIVES

(Tons)

Item	1950	1955	1960	1961	1962	1963	1964
Production	10 417	15 820	26 247	26 580	29 468	33 760	35 659
Coal-tar pitch	4 500	6 195	9 741	9 788	12 952	15 908	17 628
Naphthalene	-	82	751	823	1 114	1 481	1 690
Creosote	3 306	5 898	10 611	10 814	9 753	10 049	9 770
Refined benzene products	2 611	3 645	5 144	5 155	5 649	6 322	6 571
Imports	721	4 153	32 338	44 885	38 931	33 941	40 736
Apparent consumption	11 138	19 973	58 585	71 465	68 399	67 701	76 395

Source: Department of Financial Studies of the National Finance Corp., with direct research data.

As a consequence of growing industrial development and of the low relative capacity of the plants, imports of these four aromatic products increased considerably from the 7,021 tons imported in 1950 to the 40,736 tons imported in 1964. Apparent consumption went up from 11,138 tons to 77,395 tons between 1950 and 1964 an average rate of increase of 14.7 per cent.

Fertilizer production, in view of the growing requirements of agriculture, has been one of the government's main concerns. Productive capacity has been increased, and enterprises have diversified to satisfy these requirements. At present, there are 21 plants producing fertilizers, three more in the project stage, and innumerable mixing plants. The industry's main products are: ammonium sulphate, ammonium nitrate, simple super-phosphate, triple super-phosphate, anhydrous ammonia, complex compounds, and organic fertilizers.

/Production of

Production of ammonium sulphate increased from 2,642 tons in 1950 to 166,954 tons in 1964. The figures for ammonium nitrate production, which began in 1959, are 10,210 tons in 1959, and 126,416 tons in 1964. Production of simple superphosphate went up from 15,462 tons in 1950 to 122,613 tons in 1964. Production of triple superphosphate began in 1962 with 23,862 tons, and increased to 41,442 tons in 1964. Anhydrous ammonia production began in 1951 with 8,381 tons and increased to 175,950 tons in 1964. There was an increase in production of complex compounds from 17,980 tons in 1950 to 176,948 tons in 1964.

If ammonium sulphate, simple and triple superphosphate and ammonium nitrate production are considered in terms of nutrient units of nitrogen (N) and phosphorus (P_2O_5), it will be noted that production of these units increased to a very great extent: the production of nutrient units of nitrogen went up from 542 tons in 1950 to 114,209 tons in 1964, and production of nutrient units of phosphorus increased from 2,938 tons in 1950 to 42,567 tons in 1964.

In spite of these increases in fertilizer production, fertilizers are still imported. In 1964, 307,511 tons were imported. (See Tables 32 and 33.)

(c) The motor industry

The motor industry began in 1926 with the first assembly plant. However, only since 1962 has the industry been undergping the process of change from an assembly industry to integrated manufacture. In that year legislation came into force which established the basis for development of the motor industry (automobiles, and light and medium trucks), and by the end of 1964 importation of motors for automobiles and trucks was prohibited, together with the importation of assembled mechanical parts for consumption or assembly purposes.

Between 1959 and 1964 the number of automobile makes was reduced by half, and there are now only 9 factories which are turning out vehicles. Manufacture of vehicles in these factories is becoming integrated to include a minimum value of 60 per cent national parts. The Government stipulates the assembly quotas for the companies remaining in the national market.

/Table 32

Table 32

MEXICO: FERTILIZER PRODUCTION

(Tons)

Year	Ammonium Sulphate	Ammonium Nitrate	Super-phosphate, simple	Super-phosphate, triple	Anhydrous ammonias	Complex compounds	Organic ferti-lizers	Others
1950	2 642	-	15 462	-	-	17 980	3 648	-
1955	70 232	-	74 919	-	17 481	47 725	2 277	-
1960	147 186	54 337	93 232	-	19 676	74 211	1 389	13 017
1961	152 519	70 969	104 031	-	38 344	76 194	991	10 292
1962	157 260	123 947	109 400	23 962	100 012	83 443	1 806	11 744
1963	159 604	124 737	117 025	44 669	151 236	145 595	671	18 565
1964	166 954	126 416	122 613	41 442	175 950	176 948	1 055	17 083

Source: Department of Financial Studies, National Finance Corp.

/Table 33

Table 33

MEXICO: FERTILIZER PRODUCTION [a]

(Tons in nutrient units)

Year	Nitrogenated (N)	Phosphoric (P_2O_5)
1950	542	2 938
1951	6 919	3 639
1955	14 398	14 235
1960	48 104	17 714
1961	54 686	19 766
1962	73 141	31 882
1963	92 380	42 838
1964	114 209	42 567

Source: Department of Financial Studies of the National Finance Corp.

[a] Includes: ammonium sulphate, simple and triple superphosphate, and ammonium nitrate.

In 1950, 10,384 automobiles were assembled, and in 1964 the figure was 62,757 an annual increase of 13.7 per cent. The number of trucks assembled in 1950 was 11,191, and in 1964 amounted to 32,322 an annual increase of 7.8 per cent. The total number of vehicles assembled in the country increased from 21,575 in 1950 to 95,079 in 1964, giving an annual increase of 11.2 per cent.

There are also five plants, integrated to a great extent, which produce medium and heavy tractors; four factories producing buses; five large-scale chassis factories, and a great number of small chassis factories.

Imports of assembled automobiles amounted to 9,629 in 1950 and 26,250 in 1964. In 1950, imports accounted for 92.7 per cent of the total automobile supply, and in 1964, for 41.8 per cent. Imports of trucks amounted to 6,149 in 1950, and 9,017 in 1964. These imports accounted for 54.9 per cent of the total truck supply in 1950, and for 27.9 per cent in 1964.

/Production and

Production and imports of vehicles over the period accounted for an increase in the total number of vehicles in circulation from 302,798 in 1950 to 1,080,497 in 1964 an annual increase of 9.5 per cent. Of these totals, automobiles accounted for 173,080 in 1950, and for 686,897 units in 1964 an annual increase of 10.1 per cent; trucks accounted for 129,718 in 1950, and for 393,600 in 1964, an annual growth of 8.7 per cent.

Auxiliary industries of the motor industry have progressed considerably in the last five years. (See Table 34.)

(d) Construction of railroad cars

Railroad car construction in Mexico began in 1955. Until 1958, freight cars only were produced, but from 1959 onwards, production was diversified with new lines such as cabooses, cattle cars, express cars, hoppers, and gondolas.

In 1955, 858 freight cars were produced, compared with 1,710 in 1961. In 1964, only 263 freight cargs were produced, because of the new lines of production which appeared: express cars, hoppers, and gondolas.

Production of cabooses began in 1959 with 6 cabooses, compared with 173 in 1960, and 46 in 1961. Cattle car production began in 1961, with 518 units. In 1964, three new lines began production: express cars, with 14 units; hoppers, with 49; and gondolas, with a production of 750 units.

It is worth mentioning that some industries which have no direct connexion with rail transport, such as steel, mining, and cement plants, have been absorbing to an increasing extent some of the national railroad-car production. Production has been continually diversifying, and cars have even been purchased by other countries, with equal prices and specifications. (See Table 35.)

(e) Cellulose

At present there are 18 cellulose plants in the country, 9 of which are integrated with paper making. Five plants produce sulphate pulp; one plant produces sulphite pulp; five others, straw pulp; four, chemical pulp from bagasse; four, chemical dissolving pulp from cotton fibres; and five more produce ground wood. The total production of these plants is estimated at 327,531 tons annually.

/Table 34

Table 34

MEXICO: MOTOR VEHICLES

Year	Vehicles assembled in the country			Imports of assembled vehicles a/			Vehicles in circulation		
	Automobiles	Trucks	Total	Automobiles	Trucks b/	Total	Automobiles	Trucks c/	Total
1959	10 384	11 191	21 575	9 629	6 149	15 778	173 080	129 718	302 798
1960	28 121	21 686	49 807	32 666	5 702	38 368	483 101	319 549	802 650
1961	39 524	23 039	62 563	17 857	6 823	24 680	520 691 d/	333 601 d/	854 292 d/
1962	40 801	25 836	66 637	15 335	5 932	21 267	548 151	354 052	902 203
1963	49 458	25 891	75 349	20 064	6 259	26 323	617 960	380 254	998 214
1964	62 757	32 322	59 079	26 250	9 017	35 267	686 899	393 600	1 080 497

Source: Department of Financial Studies, National Finance Corp.

a/ Includes imports to duty-free zones.

b/ Includes specially-equipped buses and trucks.

c/ Includes buses.

d/ Estimated numbers.

Table 35

MEXICO: PRODUCTION OF RAILROAD CARS
(Units)

Year	Freight cars	Cabooses	Cattle cars	Express cars	Hoppers	Gondolas	Total
1955	858	-	-	-	-	-	858
1960	1 513	173	-	-	-	-	1 686
1961	1 710	46	518	-	-	-	2 274
1962	83	-	-	88	315	301	787
1963	432	-	-	48	-	199	264
1964	263	-	-	14	49	750	-

Source: National Railroad-Car Construction Company..

The country's production of cellulose pulp developed considerably during the period under consideration - production increased more than fivefold. In 1950, 60,323 tons of pulp were produced, and in 1964 the figure was 327,531 tons. This production includes pulp for the manufacture of a vast range of papers and paperboard, chemical pulp, for dissolving and for the manufacture of artificial fibres, and ground wood for newsprint. The annual growth rate in production during the period was 12.8 per cent.

In 1964, the total production was 327,531 tons, 78.0 per cent of which was chemical pulp, and of this percentage, 95.9 per cent was wood pulp for paper. The bulk of cellulose pulp is still made up of sulphate pulp, which accounted for 48.9 per cent of total production in 1964. Recently, however, the development of new techniques for obtaining pulp from raw materials such as bagasse and straw, as well as for the production of ground wood for newsprint, has tended to diminish the importance of sulphate pulp. In 1964, 15.4 per cent of the total pulp production was obtained from bagasse, 6.2 per cent from straw, and 21.2 per cent was ground wood. The remainder was made up of sulphite pulp and chemical pulp from cotton waste. In spite of production increases, imports still have to be made to meet the demand.

Between 1950 and 1955, total imports increased from 60,767 tons to 109,486 tons. Since 1955, the growing national production of cellulose pulp from traditional and from new raw materials reduced imports to 90,125 tons in 1964. Pulp for the production of artificial fibres accounted for 24.4 per cent of the 1964 imports, waste accounted for 26.4 per cent, chemical pulp for paper accounted for 39.1 per cent, and ground wood for the remaining 10.1 per cent. (See Table 36.)

(f) Paper

There are 37 paper plants in the country, with a theoretical installed capacity of 625,072 tons (1964): by 1966 it is projected to increase this capacity to 700,000 tons. The main plants are: "Cia. de las Fábricas de Papel de San Rafael y Anexas", the "Fábricas de Papel Loreto y Peña Pobre", the "Cia. Industrial de Atentique", the "Empaques de Cartón Titán", the "Fábricas de Papel Tuxtepec", the "Cía. Industrial de San Cristóbal", the "Cartón y Papel de México", and "Kimberly Clark de México", whose combined production in 1964 was 66 per cent of the country's total.

Between 1950 and 1964, the national production of all kinds of paper increased from 157,803 tons to 557,664 tons an annual growth rate of 9.4 per cent.

The industry's production has diversified to a great extent. Present production includes several kinds of duplex or grey cardboard and paperboard, corrugated paper, Kraft liner and semi-Kraft liner, newsprint, all kinds of writing and printing paper, toilet paper and face tissues, and some specialities.

The impressive increase in the country's paper consumption per capita, particularly for newspapers and magazines, caused imports, in spite of increases in domestic production, to go up at an annual rate of 6.8 per cent between 1950 and 1964. In 1950, imports amounted to 54,332 tons, and in 1964, 136,007 tons. The main import item is newsprint, which amounted to 99,036 tons in 1964, and which, when added to production, gives an apparent consumption of 114,627 tons. However, one of the most important pieces of industrial promotion in recent years was the setting up of the Tuxtepec paper mills, which produce newsprint - an article that previously had been imported totally. The plant uses as raw material ground wood obtained from the pine forests of Sierra Juárez and Pihatlán, in Oaxaca. The theoretical installed capacity is 50,000 tons per year.

/Table 36

Table 36

MEXICO: NATIONAL SUPPLY OF CELLULOSE PULP

(Tons)

	1950	1955	1960	1961	1962	1963	1964
I. Production	60 323	80 000	245 700	265 390	285 434	458 820	506 405
Chemical pulps	-	-	186 700	202 890	220 832	234 271	258 505
a) For paper	-	-	180 000	193 169	208 610	224 549	247 900
b) Dissolving pulp	-	-	6 700	9 721	12 222	9 722	10 605
Ground wood	-	-	59 000	62 500	64 602	69 251	69 726
II. Imports	60 767	109 486	67 812	72 309	55 278	71 392	90 125
Chemical pulp for paper	51 129	58 911	28 230	30 528	26 411	27 474	35 207
Chemical pulp for artificial fibres	554	11 313	16 681	16 171	15 367	18 687	21 988
Waste	7 736	38 969	19 234	23 436	10 044	19 673	23 771
Ground wood	1 348	293	3 477	2 274	3 456	5 558	9 159
Total	121 090	189 486	313 512	337 699	340 712	530 212	596 530

Source: Department of Financial Studies of the National Finance Corp., from data supplied by the National Chamber of Paper Industries and the Government Statistics Department.

It is worth adding that in 1964 the national paper industry covered 80.4 per cent of the gross tonnage consumed. (See Table 37.)

(g) Cement

The cement industry is one of the country's staple industries not only because of the value of its production, but because of the amounts of investment and personnel it involves. There are at present 21 companies with 22 factories spread throughout the country The combined capacity of these plants in 1964 was 4,609,500 tons compared with 1,974,000 tons in 1950, giving an average growth rate of 6.3 per cent.

Production has increased at a similar rate: in 1950, 1,387,544 tons were produced, and in 1964 the production was 4,338,880 tons an annual growth rate of 8.4 per cent. Imports have been continually reduced, and are now negligible: 29,453 tons were imported in 1950, compared with 5,222 tons in 1964. Exports were irregular during the period under consideration, and reached 3,459 tons in 1964.

The apparent consumption of cement increased from 1,395,672 tons in 1950 to 4,340,553 tons in 1964 an annual average increase of 8.5 per cent.

It is worth pointing out that expansion in construction has been instrumental in increasing cement production, as several expansion projects are being carried out at present. (See Table 38.)

(h) Glass

Production of the main items in the glass industry, (containers, crystal ware, and sheet glass) has increased considerably since 1950. The production of glass containers increased from 313,088 thousand pieces in 1950 to 881,413 thousand pieces in 1964 an annual growth of 7.7 per cent. Crystal ware production went up from 64,745 thousand pieces in 1950 to 184,753 thousand pieces in 1964 an annual increase of 9.1 per cent. Sheet glass production increased from 5,055 thousand square metres to 11,462 thousand square metres, giving an annual growth rate of 6.0 per cent.

In 1964, the industry employed 8,382 persons. Raw materials were supplied almost entirely from domestic sources,the exceptions being nitrate, and sodium perborate, which were imported. (See Table 39.)

/Table 37

Table 37

MEXICO: PAPER PRODUCTION

Year	Production	Index
1950	157 803	100.0
1955	254 000	161.0
1960	413 346	261.9
1961	451 110	285.9
1962	459 121	290.9
1963	504 976	320.0
1964	557 664	353.4

Source: Secretariat of Industry and Commerce, Government Statistics Department.

Table 38

MEXICO: INSTALLED CAPACITY, PRODUCTION, AND APPARENT CONSUMPTION OF CEMENT

(Tons)

Year	Installed capacity	Production	Imports	Exports	Apparent consumption
1950	1 974 000	1 387 544	29 453	21 325	1 395 672
1955	2 787 000	2 085 652	43 470	49 610	2 079 512
1960	3 666 000	3 086 126	1 680	3 539	3 084 267
1961	3 889 500	2 984 069	1 715	3 614	2 982 170
1962	4 258 500	3 266 407	2 420	13 104	3 255 723
1963	4 609 500	3 680 072	7 684	10 930	3 676 826
1964	4 669 500	4 338 880	5 222	3 549	4 340 553

Source: National Chamber of Cement, and Government Statistics Department.

/Table 39

Table 39

MEXICO: PRODUCTION OF GLASS ARTICLES

Year	Containers	Crystal ware	Bulbs	Sheet glass [a]
1950	313 088	64 745	175 960	5 055
1955	480 283	85 851	302 967	7 787
1960	687 661	195 500	319 870	7 278
1961	584 380	175 065	467 867	8 502
1962	740 528	184 753	150 368	9 513
1963	778 070	-	187 625	8 329
1964	881 413	-	186 105	11 462

Source: 1950-1960: calculations of the Department of Financial Studies, National Finance Corp.
1961-1962: Secretariat of Industry and Commerce. Government Statistics Dept.

[a] In thousands of square metres.

(i) Rubber

The main products of the rubber industry are tyres for automobiles and trucks, bicycle tyres, tubes for automobiles and trucks, bicycle tubes, soles and heels for footwear, hoses, and elastic bands. Tyres for automobiles and trucks stand out among these products as the most important: in 1950, 635 thousand units were manufactured, and in 1964, 1,797 thousand units,an annual increase of 7.7 per cent. Production of tubes for automobiles and trucks increased from 380,000 units in 1950 to 1,130,000 units in 1964, an annual growth of 8.1 per cent.

As the raw materials for these products are not produced in the country, 48,021 tons of natural, artificial, reclaimed, or waste rubber were imported in 1964. The value of these imports was 311 million pesos. (See Table 40.)

/Table 40

Table 40

MEXICO: PRODUCTION OF TYRES AND TUBES FOR AUTOMOBILES AND TRUCKS

(Thousands of units)

Year	Tyres	Tubes
1950	635	380
1955	893	510
1960	1 242	795
1961	1 240	864
1962	1 372	910
1963	1 530	978
1964	1 797	1 130

Source: Secretariat of Industry and Commerce, Government Statistics Department.

/Chapter IV

Chapter IV

INDUSTRIAL DEVELOPMENT PLANS

1. General industrial development strategy

Mexico has formal plans for organized industrialization directed and controlled by the State. Nevertheless, there does exist a system of co-ordination at government level and at that of the sections depending from it and responsible for it; this tends to facilitate the setting up, development and strengthening of industrial activities essential to the country. Generally speaking, private enterprise is in agreement with the direction which the State gives in its efforts in promoting industrial development.

This attitude is important because, owing to the fact that under the Mexican economic system it is the private investor who carries the responsibility of promoting industrial activities, the State only intervenes exceptionally in those sectors or branches of industry which, because they are considered basic to industrial development and because they are not covered by private initiative. This is on account of the amount of the investment involved, their level and the length of time in obtaining returns and thus are not attractive to the private investor.

Within this system it is possible to discern the existence of a government strategy in the industrial field, made up of the combined measures dealing with its policy towards the support and development of industry. The basic lines of this strategy, so far as government action is concerned, could be expressed in the following terms:

(a) Investment in works based on social welfare which have as their object the creation of a basic infrastructure for the creation of industries.

(b) The production and distribution of energy and electricity and petroleum derivatives.

(c) The opening up of new roads, with the object of incorporating nuclei of the population into the economic market, thus increasing the possibility of the sale of industrial products, and at the same time, opening up easier means of communication to new centres of production and the transport of raw materials.

/(d) The recent

(d) The recent setting up of training centres for industrial labour to cover the demands of the manufacturing industry.

(e) The extension, diversification and decentralization of the centres of secondary and higher education and their establishment in the various federal units of the Republic, with the object of spreading this type of teaching amongst an ever increasing number of persons.

(f) The creation of an economic, social and political atmosphere necessary to the stimulation of investment.

By following the above course of action, it is hoped to achieve the following aims:

(i) To raise the general standard of living.

(ii) To increase the rhythm of economic growth evenly and in well balanced fashion.

(iii) To achieve greater diversification and integration productive structure, with the aim of changing them from producers of raw materials to producers of manufactured articles.

(iv) To promote the integration of national industry.

(v) To absorb the increase of population of working age.

(vi) To make better use of manual labour, changing their activities from poorly paid to better paid jobs.

(vii) To incorporate isolated groups of the population into marketing areas.

(viii) To increase internal demand in order to achieve a greater consumption of raw materials and manufactured products, at the same time modifying the structure and organization of national trade.

(ix) To achieve more mass production in order to reduce costs.

(x) To incorporate and adapt the technological development of more advanced countries to national or regional productive structures.

(xi) To make better use of existing equipment.

(xii) To make use of resources at present unexploited.

(xiii) To make use of natural resources in order to avoid waste.

(xiv) To find substitutes for imports and,

(xv) To encourage the export of manufactured products so as to rectify the balance of trade, and, where possible avoiding the unfavourable effects of the export of raw materials.

/National industrial

National industrial development has been based fundamentally on the internal market. Nevertheless, at present, the State is fomenting industrial expansion not only from the point of view of satisfying internal necessities but also from that of encouraging exports. To this end, in addition to granting facilities to industry it also gives incentives to exports among which may be quoted: free transfer of foreign exchange, subsidies for exportation, lowering or elimination of tariffs impeding the adequate flow of merchandise and subsidies to transportation.

2. Industrial programming

(a) National plan for economic development

In her efforts to develop her economy Mexico has been concentrating on those entities capable of bettering her economic development. Within the context of the methods employed may be mentioned those, which in the field of political economy, she has been using for various decades. Another feature, more recently introduced, has been, without doubt, the efforts which culminated in a programme which fixed the targets for growth for 1963-1965, based on the practical possibilities and resources of the country.

Actually, during 1961 and part of 1962 the "Plan for Immediate Action" was drawn up to cover the period 1963-1965 which, as is characteristic in a short term plan, contains the basic elements of economic programming.

The general measures of the plan are directed towards the stimulation of private investment: towards the increase of industrial and farming production, and towards exports and services to do with tourism. It was hoped that the total investment during this period would lead to an increase of gross national production at an average rate of 5.4 per cent per annum, minimum, 2.3 per cent higher than the increase in population, and equal to the increase which the "Acta de Punta del Este" favoured.

It should be made clear that this document was drawn up at the end of 1961 and at the beginning of 1962, for which reasons, taking into account the nature of the diverse economic factors which it includes, it is easy to deduce that, as in the case of all plans, it has been exposed to a

/series of

series of modifications which have allowed it to be adjusted to the economic dynamics of the country. In view of the foregoing it was necessary to revise some of the pre-suppositions on which the original plan was based, such as was the case in the modification of the rate of growth of gross internal production, which it became necessary to raise after the decline in the country's economy during 1961, together with all the alterations that this implied to do with other variables within the system.

(b) General characteristics

In general the development plan drawn up by the Mexican Government constituted a first effort at integrating the different public and private programmes with the object of obtaining short term results which, in their turn would allow the final target to be reached more easily.

In accordance with studies carried out some 80,000 million pesos would be required as a fixed gross investment for the period 1963 to 1965. Of this total the programme of investment of public funds, (The Federal Government, federated entities and municipalities, decentralized organizations and enterprises with government participation), would reach nearly 40,000 million pesos. Private investment should have reached a similar figure during three years. Thus, public investment should have increased each year in accordance with programmes which have been drawn up; it was hoped that private investment would speed up and that by 1964 it would have slightly surpassed this figure. In previous years the proportion represented by public investment constituted between 35 per cent and 40 per cent of the total but, due to a lag in private investment and to the recent incorporation into the public sector of certain enterprises such as electricity, it was considered difficult that, within the time previously envisaged, it would be possible to reach the earlier figures.

The total amounts of investment calculated that the gross internal investment, (fixed investment plus inventory), would rise from 15.5 per cent of the gross internal production for 1960 to 18.4 per cent by 1965 with a view to reaching 9.5 per cent by 1970 with the object that between 1966 and 1967 the average increase of gross production should reach a minimum of 6 per cent annually. Thus the "Plan for Immediate Action" with the amount of investment which it implied was drawn up within a long term project which presupposed a rate of capital growth greater than that of the years prior to the plan.

The fundamental reasons why it was considered necessary to increase the rate of investment in Mexico was based on strengthening the possibilities of a more rapid economic development and on depending less on external demand, which in previous times had largely determined the rythm of general economic growth, and for which at the time of drawing up the programme no alternative prospect could be envisaged. This was due to world market conditions which affected the principal basic products which Mexico exports. The programme of investment of the public sector was drawn up in detail on a basis of plans presented by the various official departments, the decentralized organizations and businesses in which the state had a participation,taking into account the necessity of a better co-ordination of all these programmes. Of a total of around 40,000 millions of pesos corresponding to the investment foreseen in the three years 1963-1965, the calculated distribution was as indicated in table 41.

From the foregoing chart it will be seen that in the programme of investment by the public sector more than 75 per cent was taken up by works or projects to do with basic development and less than a quarter to social services. Nevertheless the latter represented a higher proportion of the total than during the period 1956-1961. The most outstanding aspect of the change in the composition of the programme of public investment was a greatly increased proportion of allocated incentives for farming, especially to works of irrigation and the rehabilitation of irrigated areas.

On the other hand, the proportion of the programme destined to transport and communication was less than the previous years, since the network of roads within the country has been a target for great expansion during the last ten years; however, the programme of railroad increase and rehabilitation was regarded as being more important than in previous years.

As regards the private investment deemed necessary for the years 1963-1965 and for which a policy of very wide stimulus is being followed, it was provisionally calculated that its distribution by sectors would be that consigned to it in accordance with table 42.

/Table 41

Table 41

MEXICO: PUBLIC INVESTMENT FORESEEN IN THE PLAN FOR IMMEDIATE ACTION

Concepts	1963-1965	
	Millions of pesos	Percentage
Basic investments in development	30 148	75.7
Incentives to farming	7 078	17.8
- Irrigation	6 758	17.0
- Other agricultural investments	196	0.5
- Forests	124	0.3
Industrial Incentive	11 429	28.7
- Electricity	5 345	13.4
- Petroleum	4 923	12.4
- Steel	465	1.2
- Other investments	696	1.7
Communications and transportation	11 383	28.6
- Roads	4 693	11.8
- Railways	5 130	12.9
- Other investments	1 560	3.9
Other concepts	258	0.6
Works for social services	9 321	23.4
Works for administration and defense	373	0.9
	39 842	100.0

/Table 42

Table 42

MEXICO: PRIVATE INVESTMENT FORESEEN IN THE PLAN FOR IMMEDIATE ACTION

Concepts	1963-1965	
	Millions of pesos	Percentage of total
Farming activities	5 600	14.2
Manufacturing industry	16 000	40.6
Construction	13 000	33.0
Transport	3 800	9.6
Others	1 000	2.6
Total	39 400	100.0

(c) Industrial Field

The 16,000 millions which it was considered could be invested in the manufacturing industry were obtained from the data compiled from plans and products of expansion and new investment in the principal branches of industry. Of this total more than 3,700 million pesos would be invested in basic steel industry, plus 2,500 millions in the auto industry, 3,200 millions in other branches of manufacture of equipment and machinery, 1,700 millions in chemical and pharmaceutical industries, 1,000 millions in petro-chemical industries, and around 1,000 millions in the modernization of the textile industry nearly 300 millions in the paper industry, 500 millions in cement, more than 700 millions in electrical apparatus and material and 1,000 millions in projects to do with industries engaged in the preparation of foodstuffs, drink, tobacco, footwear, clothes, and many others which produce consumer goods, both durable and non-durable.

For the financing of the "Plan for Immediate Action", it was deemed necessary to count principally on internal resources, from public as much as from private funds, but efforts would be made to complement them by credits and investments from abroad, preferably through net long-term investment by foreign capital.

/The plan

The plan further assumed the continued application of the monetary, fiscal and industrial incentive policy as outlined above as well as the programmes of social betterment.

(d) The plan in execution

It can be considered that the plan has been carried out satisfactorily both in the public and private sectors.

The public sectors maintained it's investments within the fields and in accordance with the sums forecast, and administered them in accordance with the concepts of the plan. The private sector, on it's side, reacted favourably to the stimuli and measures initiated by the Government, complying satisfactorily with the role assigned to it within the plan.

The influence of the programme was shown, amongst other factors, in the recovery experimented by Mexican economy in the two year period of 1962-1963, years in which it reached a rate of increase even greater than those prior to 1961, (year of the economic recession). This can be appreciated from the following chart.

Years	Gross national production (rate of annual growth)
1959	4.7
1960	5.7
1961	3.5
1962	4.8
1963	6.0

Source: Bank of Mexico S.A., Annual Bulletin.

An analysis of the figures for the years prior to the recession show an exact variation of 5.4 per cent, thus meeting the target envisaged in the plan.

/(e) Industries

(e) Industries of maximum interest in national development

Those industrial sectors which, within the development plan, were considered as most adequate in the achievement of the general objectives envisaged, were their relative contribution to the total of goods and services. Based on this criterion the following industrial classification was evolved.

(i) Dynamic sectors, i.e. those whose relative contribution to total production is on the increase.

(ii) Sectors whose relative contribution does not vary, and

(iii) Sectors whose relative contribution shows a decrease.

Included in the category of "dynamic" are the following sectors: petroleum, electric energy, celulose and paper and their products, chemicals and petrochemicals, non-metallic, steel, machinery construction, construction of transportation equipment, construction and installation works and timber and cork.

These sectors combine two principal characteristics: in some cases they constitute activities which are of powerful growth, (petroleum, electric power, celulose and paper and their sub-products etc.), and in others they contribute decisively to the creation of capital, (steel, machinery construction, transportation equipment, etc.). Growth of the internal market was to be strengthened in all its sectors by an intensive process of its substitution for imports. The only sector in which a growth of imports was foreseen was in that of the construction of equipment and machinery, a field in which import substitution has barely begun.

(f) Projects

Table 43 shows the estimates made of production, imports, exports and demand for the years 1965 and 1970 in those industries considered of greatest interest within the Mexican Government's plan for development. The figures therein appearing are expressed relatively, taking 1960 as a basis for comparison. These projects explored with greatest care the extent to which these sectors of production were to be encouraged; obviously the project for 1970 was less valid than that for 1965. On the other hand in these calculations no account was taken of the stimulus which might be given by the ALALC to foreign demand, an omission which will have to be rectified.

/Table 43

Table 43

MEXICO: PROJECTS FOR THE DYNAMIC SECTORS FOR 1965 AND 1970

(Index 1960=100)

Sector of origin	Internal production		Imports		Exports		Internal demand	
	1965	1970	1965	1970	1965	1970	1965	1970
1. Petroleum	139	195	28	28	109	109	133	187
2. Electric energy	161	259	-	-	-	-	157	252
3. Paper and its products	142	226	114	82	-	-	136	197
4. Chemicals	161	259	69	37	139	194	139	206
5. Non metallic minerals	150	212	143	190	113	141	150	213
6. Steel, metallic products, appliances, etc.	171	240	69	82	3 525	4 000	139	197
7. Machinery construction	143	214	146	210	100	100	145	212
8. Construction of transportation equipment	165	254	76	76	100	100	142	208
9. Building and installations	150	213	-	-	-	-	150	203
10. Wood and cork	154	219	127	207	207	414	150	213

Source: Plan for Immediate Action, 1963-1965.

/(g) Incentives

(g) Incentives and policy instruments used for industrial promotion

With the object of better paid jobs to ever increasing sectors of the population, the Government has given the highest priority to industrialization. During the last twentyfive years Mexico has succeeded in developing her industry qualitively and quantitatively, thanks to her policy of carrying out a balanced economic development within which the various sectors have mutually supported each other.

The objectives of the present policy of industrialization are the substitution of imports by national production, to encourage a greater integration of important branches of industry to stimulate the export of manufactured products and, in general, to the full use of capacity already installed, the technical modernization of industries with obsolete plant or which work at excessive costs.

During the period covered by the plan, the Government succeeded in avoiding the duplication of investment in industrial fields in which it was considered there already existed sufficient productive capacity. In this connexion, investments were channelled towards underdeveloped fields in which they would bring satisfactory returns and towards those whose price structures and costs would not bear too heavily on the consumer. Further, considerable efforts were made to encourage technological research and to speed up the training of technicians at different levels.

Another characteristic of this policy of industrial development was the stimulus towards the siting of new plants in areas which had lagged behind in their economic development relative to those linked to the major marketing zones. It was thus possible to limit the growth of areas of excessive industrial concentration and to offer facilities for investment in others with a sufficient labour force, water, electric power and other natural resources.

It was considered that the projects for industrial expansion and modernization could not be carried out successfully if the Government, in addition to the above measures, did not pursue its policy of fiscal stimuli, credits and market protection. Very briefly, the most important measures of fiscal stimulation during this period were the following: exemption from taxation on distributable profits for purposes of reinvestment; an accelerated fiscal depreciation rate for industrial equipment; fiscal concessions for new and necessary industries; subsidies and exemptions in the mining field; exemptions to favour the export of industrial products and subsidies to those industries that supply the frontier zones etc.

3. Institutions having executive responsibility for industrial development

Historically speaking, the country has been achieving only a slow co-ordination between the work carried out by the various public institutions, and thus Mexican state intervention in economic life has produced positive results, economic as well as social, since its intervention in the total investment has increased year by year and, from the material point of view, the creation of a powerful infrastructure cannot be denied and which has been the most important basis in the development of Mexican economy during recent years. In times past various attempts were made to establish some systems of planning; they were, however, abandoned because the country's necessities and problems made it necessary.

Between 1925 and 1930 the first attempts were made to establish some planning system within the legal and technical content of a governmental programme through a six year plan drawn up at this stage.

Later, in 1948, the National Commission for Investment was set up, under the auspices of the Secretariat for Home Affairs and Public Credit, and administrative organization whose duty it was to enforce the dispositions of the Law of Control and Supervision of Decentralized Organisms and in which the State had an interest, dated 1947.

Although the life of this Commission was ephemeral and it faced serious problems when it attempted to reconcile eminently technical questions with political matters, it can be said that it was one of the earliest experiences in this field and further, laid down an important and immediate precint for the Committee of Investment set up by the "Acuerdo Presidencial" of June 7, 1953 and the Committee of Investment established in September 7, 1954. Within the process of organizing the task to be carried out to do with public spending, there should be mentioned the creation of this Commission for

/investment as

investment as an organism depending from the President of the Republic. This functioned from 1954 to 1959 and carried out such tasks as the determination of the amount of public investment, the evaluation and grading of the programmes of the public sector, etc.

Parallel with these efforts, the Secretariat for Home Affairs carried out a review of its structure in reference to its income and expense budget which resulted in the presentation of the functional budget for 1954. In spite of this it was still difficult to establish a basis on the latter and on the traditional administrative budget in respect of the proper handling of public finance. Thus, two years later the system of double accounting was introduced. Thanks to these modifications it has become possible to give greater clarity to do with the distribution of public funds, income and expenditure and although there is still room for improvement and in fact the checking and study of budgets continue, with the object, among others, achieving not only an accountable presentation, but also an economic picture of public income and expenditure which permits of a use of such information in planning at a federal level.

At the end of 1958 the Secretariat to the Presidency was set up, in accordance as established by the Law of Secretariats and Departments of State passed during the same year by virtue of which the attributes of the Commission for Investments passed entirely to this new body. The functions of the Secretariat to the Presidency according to the decree which created it are those of planning, co-ordinating and supervising the investment of offices depending from the Federal Executive and of those decentralized organisms and concerns with State participation. The studies and recommendations of this Secretariat are submitted for the approval of the President of the Republic. At the same time this Secretariat is dedicated to the study and formulation of that part of the national planning for which the public sector is responsible.

In 1959 the Executive dictated a new agreement in which it was laid down that the Secretariat and the Department of State together with the decentralized organisms and concerns with State participation should draw up an annual programme of investment for the period which covered the last part of 1959 and the years 1960 to 1964. This programme was to be carried

/out in

out in a detailed manner and the object which it was intended to reach, in part, through the regulation of public expenditure, was that of accelerating the development, and increase production and also foreseeing the participation of private enterprise. Other aims to be pursued were those of raising the general standard of living, increasing the offer of manual labour, bettering the distribution of income, stimulating the development of those regions of the country which were still in a backward state, to achieve the structural equilibrium of the economy, at the same time maintaining monetary stability and to support the balance-of-paymentsthrough reductions and substitutions for imports, and at the same time increasing exports.

The delicate problems of the country's financial resources as well as their use in facing up to the imports of the means of production, derived from the industrialising process was also given attention through the constitutional article 131 of January 1961. In effect the "Ley Reglamentaria" gave the executive the authority to fix the amount of the financial resources applicable to predetermined imports. This faculty is carried out by the President of the Republic through the Secretariats of Home Affairs and of Industry and Commerce. This is one of the concrete examples of the monetary and financial policy linked with planning.

This Presidential Agreement signifies a great advance in the efforts to co-ordinate economic development, since it not only deals with the problems facing the public sector, but also includes for the first time, the participation of the private sector as a vital element whose collaboration should not be underestimated. It is also important to emphasize the overall picture of this disposition, since in it are included the basic factors from the strictly economic point of view as from the monetary angle, as well as in terms of regional differences within the context of a balanced development. Equally there can be seen a measure, on the part of the executive, in which there is very clearly defined for the first time a doctrinal thesis as to its economic policy in general.

In spite of earlier efforts, the country, however, did not count yet with a solid basis to carry out, on a global basis, the programming of development and thus, in 1961 another Presidential Agreement was passed in which it was laid down definitely the obligations on the part of all

/Departments and

Departments and all Organisms comprising the Public Sector to present programmes, studies and projects which, co-ordinated by the Secretariat of the Presidency, would allow the objectives of the Executive to be attained or, in other words, to achieve an economic development based on social justice. To make possible the reaching of these legal norms, the Mexican Government considered that this would be impossible without the drafting of economic and social plans, in which it would set out the aims and objects of these as well as the methods and elements to be employed to achieve them. This being so, this decree established the necessity of drawing up special programmes for those sectors of the economy which give powerful support in the hastening of economic development and social betterment.

In 1962 the Executive made another effort which, up to a certain point, was the culmination of all its work towards the creation of a Secretariat to the Presidency. Actually, in March of that year, there was passed a new decree establishing an Intersecretarial Commission formed by the Secretariat of Home Affairs and Public Credit and the Secretariat of the Presidency. This organism is one of the first dedicated to specific work in planning in the modern sense and, at the same time with a set of objectives far more complete and defined in this field. From the point of view of economic policy this new disposition repeats the principles laid down by the decree of 1961 and thus the economic palicy carried out by the Executive in this field shows great continuity in addition to having converted itself into a pre-requisite to any effort tending towards the encouragement of development. Thus the functions of the Intersecretarial Commission can be summed up in one single objective - the drawing up of national plans for development both short-and long-term, both from the point of view of economics as well as from the social point of view.

The first concrete work of the Commission consisted in drawing up a plan of development, both long and short-term, which Mexico presented to the Organization of American States, as part of the work corresponding to the efforts to be made by Latin American countries in accordance with the stipulations of the Alliance for Progress. This plan, called "The Plan for Immediate Action", was itself analised by the "Committee of Nine" and by a group of specialists in economic and social affairs.

This work was carried out by the Secretariat to the Presidency, by the Home Secretary, by the Secretariat for Industry and Commerce, the Secretariat for Agriculture and Cattle and Institutions such as the Bank of Mexico Ltd., the "Nacional Financiera" and others in accordance with their specific functions.

The most novel aspect of the decree of March 1962 and the work carried out by the Intersecretarial Commission, was, beyond doubt, the fact that it included not only the programming of the costs of the Public Sector but also those of the private sector which, traditionally, had been considered somewhat independent.

At a later stage the Commission began a revision of the figures of the "Plan for Immediate Action", with the object of rectifying or ratifying them in the light of more detailed studies. For this type of investigation it made use of direct sources, especially in the field of private investment.

In the efforts towards planning which have been carried out, the drawing up of plans dealing with specific industrial sectors and industry in general have been in the hands of the Secretariat for Industry and Commerce.

4. Programmes and institutions with sectoral responsibilities

The Secretariat of Industry and Commerce working through the Director General of Industry developes programmes at distinct levels following the intentions of the general planning programme, to be integrated in the different branches of industry. These programmes are carried out from sector level down to that of private industry.

In this way the Secretariat promotes the development of new industrial activities through publications destined toward the orientation of private initiative, taking into account the possibilities existing within a large number of industrial fields and whose approval and evaluation are carried out at project level. Some of the principal programmes for integration deriving from general stimulus are the following:

(a) Radiocommunication and telecommunication

(i) Single band radio communication equipment; (ii) Modulated frequency radio communication equipment; (iii) Short wave; (iv) Portable carrier wave; (v) Calculating machines; (vi) Telephonic communications.

(b) Modulated frequency radio transitors and portable television transistors.

Components, various: (i) Wire potentiometers; (ii) Frequency modulated synchronizers; (iii) Synchronizers for portable transistor televisor sets; (iv) Transistors; (v) Diodes and (vi) Variable condensers.

(c) White tracer line

(i) Vacuum cleaners; (ii) Hair dryers; (iii) Washing machines; (iv) Polishers and (v) Mixers.

(d) Automobiles and trucks

(i) Industrial automobile parts; (a) Shock absorbers; (b) Cross sections; (c) Wheels; (d) Electrical equipment (windings, regulators, transformers, alternators etc.); (e) Steering wheels; (f) Axles; (g) Casings; (h) Cylinders; (i) Pistons; (j) Valves; (k) Steering rods and (l) Gasoline pumps.

(ii) Motors; (a) Gasoline; (b) Diesel; (c) Self-propellors, static motors etc.

(e) Machinery for construction

(i) Graders; (ii) Levellers (pneumatic and metal); (iii) Stackers; (iv) Concrete mixers; (v) Mechanical shovels; (vi) Travelling and gantry cranes; (vii) Static rock breakers; (viii) Rock crushers, primary, secondary and tertiary, (portable); (ix) Vibrators for concrete; (x) Motor scrapers.

(f) Industrial equipment

(i) Stackers and (ii) Trailers.

(g) Farming and construction tractors

(h) Agricultural implements

(i) Office equipment

(i) Adding machines; (ii) Calculating machines; (iii) Cash registers; and (iv) Typewriters (electrical and mechanical).

(j) Compresors

(k) Refrigeration equipment

(l) Drills

(m) Fire extinguisher equipment

(n) Pumps for fluids

(o) Irrigation equipment

/Chapter V

Chapter V

POLICY MEASURES FOR INDUSTRIAL DEVELOPMENT

1. Government action in industrial production

Support given by the State with purpose of stimulating industrialization is composed of a diversity of factors which are used to influence specific aspects of the operation or structure of industry, that is to say of the process of industrial development seen from an overall point of view. Some of the principal instruments are as follows:

(a) The system of granting import licences

At present this is used mostly for the protection of national industry, to promote new activities or greater industrial integration. In the case of certain goods it continues to be important to reduce or prevent the import of goods not essential to the national economy. Through the employment of this instrument it is intended also to achieve a saving in foreign exchange, or to its channelling towards the purchase abroad of goods which have priority within the programme for national economic development.

In this way controls on imports are applied to substitute imports and encourage industrial integration by sectors, regions and nationally. Such is the case in the free zones and perimeters and frontier areas. In these there are also regulations as to the import of merchandise limit the development of industries situated in these areas, granting them a wide protection. They are also used to preserve natural resources which cannot be replaced and where reserves are short and may be of strategic importance to the country. And, finally, they are used as an instrument of regulating and protecting supplies for the internal market, above all basic products to do with public nutrition, raw materials and products essential to development.

Controls of imports affect the purchases of the private sector and the public sector, which should acquire goods produced in the country; such imports are only authorized when they are shown to be essential. This means that approximately half the articles coming from abroad are subject to import licences.

It is the duty of the Secretariat of Industry and Commerce through its Directors General of Industry and Director General of Commerce to establish these controls and to turn down or concede such licences.

(b) System of licences for exports

Through this instrument it intended to regulate the export of certain products in order to preserve natural resources which are non-renewable; to avoid deficiences in supplying the home market; and further, to regulate the prices of products in the home and international markets.

This control is also excercised by the Secretariat of Industry and Commerce through its Directors of Commerce and Industry.

(c) Import duties

These are used in co-ordination with and complementary to import controls and are considered more as a mechanism for the regulation of trade than as a source of fiscal income. They are fixed in accordance with the nature and origin of the merchandise and its basic material, its stage of processing and the use to which the product is to be put.

In general terms machinery, equipment, raw materials and those materials destined to the fomentation and expansion of industrial installations which may benefit under the law of fomentation of new and necessary industries are considered free of import duties. Basic products complementing national production pay no import duties, as well as those products considered as necessary or essential to the general welfare or to national development.

Articles similar to or which can be substituted by internally produced goods in sufficient quantities to cover the necessities of the country, carry relatively high duties, and articles not considered necessary, and above all luxury articles, whether they are produced internally or not, are subject to high duties.

It is the duty of the Secretary for Home Affairs and Public Credits and the Director General for Studies of Home Affairs to carry out the necessary studies to determine the duties to which these goods should be subject.

/(d) Reductions

(d) Reductions in duties on export manufactured or semi-manufactured products

Almost all these products are free of duty in order to stimulate exports. The body which determines the level of these duties is the Secretariat for Home Affairs and Public Credit through its Director General of Home Studies.

(e) Privileges, exemptions, subsidies and return of duties to exporters

Through these instruments it is possible to modify the structure of current exports, encouraging the export of manufactured goods and procuring the maximum use of national raw materials.

Within this group of measures there should be specially mentioned the Presidential Agreement of September 27 1961, which concedes fiscal privileges to the export of manufactured and whose beneficiary is the producer. These advantages consist in the reduction of taxes on imports, on business profits and on income tax. These are granted on export merchandise which incorporate up to 80 per cent of national products.

It is the duty of the Director General of Home Studies, of the Secretariat for Home Affairs and Public Credit to apply these measures for the encouragement of industry.

(f) Law for the fomentation of new and vital industries

This grants fiscal privileges to those concerns which set up new industrial activities or improve those already existing. The law classifies industries into new and vital; each of these is divided in its turn into basic, semi-basic or secondary. This classification has, as its object, the definition of the duration of fiscal privileges.

New industries are those which manufacture goods which have not been previously produced prior to the application for exemption and also those producing goods by new processes or new techniques or with different materials, always assuming that these are translated into advantages in price, durability or services to the consumer.

Vital industries are those manufacturing goods which are not produced in sufficient quantity to satisfy the internal market, always presuming that their production is not merely transitory or very small.

/Also classified

Also classified as vital are those industries which in order to cover their production costs must export part of their production, after having satisfied the home market; in such cases exemptions are granted exclusively on that part destined for export.

Fiscal concessions are based on general import duties and the additional ones corresponding to goods which are needed for the manufacture of those products which are the object of concessions, assuming that these are not manufactured in the country or, if they are so manufactured, not in the quantity or of the quality required; also on the general export tax and its additives; on stamp tax; tax on business profits and on income tax.

Fiscal exemption can up to 100 per cent of the taxes above mentioned, with the exception of income tax, (tax on business profits), which carries a maximum ceiling of 40 per cent; the duration of these may be up to 10 years, according to the importance of the industry.

Applications for exemption of tax are classified to the nature of the activity and its importance in industrial integration and in the growth of industrial plant throughout the country together with the siting of industrial units in the less developed zones.

The application of the Law for the encouragement of new and vital industries is in the hands of three government organisms: The Secretariat of Industry and Commerce the Secretariat for Home Affairs and Public Credits and the Bank of Mexico Ltd. With these three organisms there was formed an Intersecretarial Commission, where applications by industrialists who wish to take advantage of the law are studied conjointly.

(g) Programme of industrial integration

This measure is applied in order to achieve the integrated manufacture of products considered vital to the economy or also to achieve the integration of industrial branches or sectors. Its effects also consist in increasing substitutes for imports.

It is the duty of the Director General of Industry, of the Secretariat of Industry and Commerce to apply such programmes.

/(h) Incentives

(h) Incentives for the re-investment of profits

A 15 per cent exemption of taxes on profits distributed to industrial concerns is conceded if such profits are destined to the building up of reserves for re-investment directed towards investments indispensable to the modernization of their installation and the expansion of the same.

The Director General of Income Tax and the Secretariat of Home Affairs and Public Credit are responsible for the application of this incentive.

(i) Accelerated depreciation

The system of fiscal depreciation allows industrial beneficiaries to opt for the method of accelerated depreciation for investment in machinery and equipment.

Parallel to this measure, there exists the traditional system of direct depreciation and by fixed percentages based on a period of 10 years for machinery and equipment and 5 years for movables, transport equipment, rolling stock, shipping, aircraft, machinery for the building industry and other lines.

The Director General of Income Tax for the Secretariat of Home Affairs and Public Credit is also responsible for the application of this measure of industrial fomentation.

(j) Incentive laws by state governments

The Governments of the entities of the Federation have established laws for industrial incentive, through which they concede fiscal privileges as a means of fomenting and developing industries within their borders, even to the point of granting land together with the elements necessary to the establishment of industries, as has happened in the cases of the States of Mexico, Morelos, Tlazcala, Puebla, Queretaro, San Luis Potosi, Guanajuato etc.

It is the State Government Offices who are in charge of the application of the laws for incentive in each of the federal entities.

(k) Industrial siting

Within the facilities conceded by the Federal Government and the state governments there should also be mentioned the creation of adequate areas for the siting of new industries.

/The industrial

The industrial parks are an example of this type, among which may be quoted the industrial park of Queretaro, in which there has been established an important industrial nucleus of heavy machinery, the industrial city of Irapuato where chemical industries and products originating from farming are projected, the industrial zone of Atequiza, near the city of Guadalajara where industries of pharmaceutical, and chemical raw materials and of light machinery are being founded, the industrial zone of La Laguna which will foment metalurgical and machine industries and, finally the industrial zone of Toluca in which projects for the automotive industry are being carried out.

Through the creation of these zones with services adequate to industry it is intended to develop relatively backward areas and thus to multiply the favourable effects of development in differente parts of the Republic.

(l) The fomentation and circulation of industrial techniques

Mexican public and private sectors recognise the necessity of improving the technical resources for industrial development. For this there are being developed, in addition to those already existing, multiple centres of teaching and technical research at different levels. In this way steps are taken to deal with primary, secondary and higher education and the formation of artisans, executives etc.

These functions correspond to the Secretariat of Public Education and organisms of higher education such as the Autonomous University of Mexico and the various universities of the states of the Republic.

(m) Promulgation of new fields for investment

The Federal Government through the Secretariat of Industry and Commerce makes a study of those industrial sectors and products capable of being manufactured in the country, passing on its findings to private enterprise.

(n) Operations of compensated interchange

Through the co-ordination of import and export licences operation of compensated interchange are carried out, authorizing the import of articles which do not compete with nationally manufactured products, against the sale of surpluses of different types of export goods.

The Secretariat of Industry and Commerce with the help of the National Bank of Foreign Trade are responsible for the working of this mechanism.

/(o) Credit

(o) Credit and financing

An important role is played by the Fund for the Fomenting of Manufactured Products. The Fund helps the producers to achieve a reduction in financial costs and transport, re-insurance and warehousing. It finances exporters so that these, in their turn, may be able to grant medium term credits, particularly in those fields where it is traditional for the sellers in the international market to concede them. The Fund helps to guarantee to the exporter the recovery of the credits granted.

The financial authorities of the country are pressing the private institutions of credit and insurance to participate in the policy of the Fund for the Promotion of the Export of Manufactured Products. Reforms have been introduced into the relevant law to enable the Deposit Banks to grant loans for up to three years in cases of backing the export of manufactured articles and to operate with documents arising out of such operations.

(p) Industrial norms and the supervision of transactions

The Federal government takes care that goods to be exported comply with the standards of quality laid down by the Secretariat of Industry and Commerce through its Directorate General of Standards.

On the other hand the Commission for the Protection of Foreign Trade was created whose essential functions were directed towards the protection of foreign trade against practices contrary to commercial ethics.

The Commission will intervene in cases of unlawful acts which affect the foreign trade of the country. It will deal with complaints by foreign concerns against firms established in the country and also complaints by national concerns against foreign sellers and complaints presented by tourists. All national importers and exporters are inscribed in the national register carried by this Commission.

2. Protective tariffs

(a) General characteristics of tariff policy

The State, with the object of protecting the development of new industries in the face of foreign competition, employs tariffs as an instrument. These protections have permitted the consolidation of numerous industries which, given other conditions could not have developed.

/Tariff quotas,

Tariff quotas, in any country, play a triple role: (i) Of obtaining fiscal income, (ii) Of protecting national manufactures against competition from foreign products and (iii) To safeguard the balance of payments.

Further, following the end of the second world war, Mexico began to use tariffs as an element in the promotion of industry.

In November 1947, the tariff rate which had come into force in 1950 was substantially modified, when an ad valorem tax was introduced and the rates raised. The modification was determined by the increase of imports resulting from the accumulated demand during the war period. Since then the rate has undergone constant changes in the level of imports; the most outstanding occurred in 1951, 1954, 1955, 1961 and 1965.

Apart from the alterations in tariff rates which are periodically carried out by the State with the object of encouraging the growth of manufactures, industrialists have opportunity of requesting and obtaining protection increases for import tariffs on articles which they elaborate.

Thus the government wields an instrument of industrial stimulation through high rates which impede competition of imported articles.

This method of encouragement has positive results, since otherwise many industries would not exist. Nevertheless there are cases where industrial branches are protected which operate with low efficiency, or where the establishment of monopolies is made possible. A national economic policy would make a flexible control of tariffs obligatory, reducing them after a prudent lapse of time with the object of gradually forcing industries to increase their production and lower costs; unfortunately, up to now, tariffs have been controlled excessively rigidly.

In Mexico, as in other developing countries which attempt to establish a broad industrial base, tariff measures and the control of imports represent a defined cost in terms of higher prices which the consumers pay for articles whose import is substituted by those of national manufacture or through exemptions and subsidies established in favour of industries. There seems to be no doubt that this situation is fully justified, always, and if, it be transitory, since it would not be admissible to maintain indefinitely measures to safeguard industries which do not seem able to perfect their industrial and technical processes or which do not make sufficient effort to reach a degree of integration which signify the use of raw materials and other non-imported elements, which do not improve the quality of their products or whose directors adopt an attitude of indifference towards new methods of production and administration.

The permanent elimination or curtailment of competition does not stimulate a rise in productive efficiency, since the industrialists know that the fact that acquisitions from abroad are limited represents the enjoyment of a tied market, sufficient to obtain attractive profits.

(b) Average levels of protection

(i) Imports. Generally speaking reduced tariffs are levied on the import of raw materials, machinery equipment and materials necessary to national economic development.

Processed materials pay a higher tariff than their raw materials with the object of encouraging import substitution.

A high level of tariffs is levied on those articles which compete with national industry, with the object of offering protection to the internal manufacture of such articles. Luxury articles also pay a very high duty which has two objects; on one hand the fiscal angle and on the other the discouragement of imports so as to achieve a more adequate channelling of foreign expenditure.

(ii) The tax on exports ensure the supply for the home market thus avoiding phenomenons of scarcity and the rise of internal prices; it also has as its object the diversification of foreign trade, both geographically and structurally and defends non-renewable reserves of resources by regulating their export.

This policy is applied substantially to the export of primary products whose prices fluctuate on the international market and thus have a very importante effect on level of income of farmers and thus on overall national economic activity. On the other hand manufactured products are exempt from these taxes or the taxes to which they are subject are relatively lower.

/(c) Principal

(c) Principal or partial exemptions and the system of their application

The principal exemptions either total or partial and the subsidies for imports and exports can be found in a series of legal dispositions, among which the following can be shown as typical examples:

(i) Law for the fomentation of new and vital industries. This offers exemption of up to 100 per cent both on import and export duties. The import duty is granted on the import of machinery and equipment to the manufacture of new and essential articles if they can be considered basic, semi-basic or of secondary character. Raw materials serving industries coming under this law are freed from import tax. The same law grants exemption of tax to exportable manufactured goods,

(ii) Rule XIV of the List of General Import Taxes. This grants a reduction of duties on equipment or machinery which makes up a complete industrial installation or forms unit which will substantially increase the production capacity of an enterprise or machinery or equipment destined to modify the process of transformation actually being carried out in factory with the object of reducing costs and conferring benefits on the consumers.

(iii) Tax exemptions may even be granted on the import of raw materials or materials not included in the Law for Incentive in those cases in which it can be shown that they are going to serve as a basis for manufactured articles destined for export, in that part to be used for this purpose.

(iv) Subsidies for exports are granted, also, for manufactured products to be sold abroad with the object of encouraging such exports and the diversification of our foreign trade.

The policy of subsidies for foreign trade is applied to stimulate exports and imports reducing fiscal burdens so as to situate these in a position to be able to compete, on one hand, with third parties, (countries), and also to encourage the import of those articles regarded as essential.

(v) The initiative to modify tariffs may be initiated by the Federal Government or from private sectors; nevertheless any modification is carried out after a prior economic study to justify them.

(d) Rules or principles established for the modification of tariffs

The Director General of Studies on Home Affairs and Public Credit is responsible for the reglamentation and the concession of partial or total exemption on subsidies on taxes and exports by national industries.

/3. Other

3. Other forms of import control

In order to establish an adequate protection for national production and, at the same time, regulate the expenditure exchange, the government uses the method of import. Through this policy it limits, on one hand, the disequilibrium of trade balance and, on the other, it orientates this expenditure towards the acquisition of those goods which help to raise the productivity of national industry. As a third objective, it also fixes the necessary conditions it also stimulates the conditions necessary for the installation of new industries, to which it guarantees a market for its products, in that they may be able to operate economically. Contrary to the tariff system which is of a generic type, the control of imports tends to emphasize particular objectives; it is established through a detailed study of productive industry and the consumer section which it is going to affect, with the object of ascertaining its capacity to satisfy the market as to quantity, quality, price and suitable opportunity.

Since, necessarily, import controls isolate the protected industry eliminating foreign competition, it is possible to keep a constant watch on the industrial field which is being favoured, with the object of suspending the control when necessary.

To date nearly 50 per cent of the fractions which come under the general rate of tariffs on imports are subject to control. A large number of entities in the food and drink group are affected due to the fact that national production is sufficient to supply the internal demand for foodstuffs; the group comprising fuel, lubricants and electric energy also represents a high proportion of controlled entities since production can meet demand.

In general terms, the tendency is towards greater control of foreign buying with the object of getting the best results from the expenditure of foreign exchange spent on imports and to support national production of controlled merchandise.

So far as export controls are concerned, about 20 per cent of the entities which come under the General Tariff Export Rates are subject prior licence by the Secretariat of Industry and Commerce; at present, more than anything else, they tend to protect non-renewable resources. These controls

/have also,

have also, as their object, the limitation of sales abroad of industrial raw materials, in order to obtain an adequate supply of these for national industry and encourage their export at a higher level of processing.

The exercise and carrying out of import and export controls have their deficiencies among which can be noted the very slowness of systems for dealing with the application for control and modifying them to conform to national interest; another problem is the weakness of the controls to prevent the abuses to which they can be exposed in certain determined sectors.

In general there exists an adequate co-ordination between the policies of tariffs and licences as well as in the import and export of merchandise. They should be considered more as a measure of stimulus and industrial development than as a method of obtaining fiscal income.

Up to now, the policy of import and export of merchandise as well as the tariff policy in this field, has led to great benefits in the national economy and, in particular, to industrial development. The growth of national industry in the last decades is an evident proof of the promoting and encouraging effects of these measures. The import substitution programme of recent years and, the speed with which it is being carried out, and the programmes of industrial integration is a good example of how much controls of imports as well as tariffs when adequately managed and administered can produce positive effects and co-operate in an important extent in industrial development.

4. Tax policy as a means of promotion and orientation of industrial investment

(a) Tax treatment of industry in comparison with other sectors of the economy

Charges on industry are divided into four groups; taxes, duties, products and advantages. In general terms the greatest income derives from taxes and duties; nevertheless, given the unilateral nature of the taxes to do with characteristics of good will and direct reciprocity of a State, it is these that form the base on which the tax policy of our country is fundamentally founded.

/At Federal

At Federal level the taxes affect the great majority of those sectors that make up the economic activity even if fiscal charges vary from one to another for various reasons such as: the extent of the base of the taxes, the object or subject and the degree of transference and incidence of the charges.

In this way, primary activities, that is to say cattle, agriculture and fishing, are subject to the payment of income tax and business profits in those cases laid down by such law; hunting, fishing and the exploitation of forests are further subject to specific taxes.

In general terms fiscal charges on primary activities are relatively low, due to the difficulties of administration as well as special measures such as fiscal agreements as a result of which this sector yields a relatively low total fiscal income.

Industries engaged in extraction, principally mining and petroleum are subject to specific taxes on the production of metals, minerals and metallic components and on the production of petroleum, its derivatives and their residues.

The oil industry is exempt from income tax and that on business profits since the Law as to Profits lays down a special agreement to cover the taxes and duties laid down in the relevant laws, by means of a rate of 12 per cent on the total amount of the gross profit.

Mining is not subject to income tax, nor to tax on business profits since it comes under a special tax at federal level.

The industrial sector is subject to a tax on business profits to income tax. There are some activities which are also affected by a series of taxes on production and direct sales which are referred to as special taxes and which affect specific activities such as, for example: taxes on waters, soft drinks and canned juices, the sale and purchase of sugar, cement, automobiles, processed tobacco, etc.

Internal trade contributes basically through income tax, business profits, stamp tax and others of lesser importance.

Transport and communications are affected only by income tax, a law that grants compensatory treatment to big investments that the development of this type of industry may demand, and allows accelerated depreciation of assets, i.e. within a relatively short period.

/The Federal

The Federal Government grants foreign trade various facilities and reductions in taxes to be paid.

(b) Fiscal dispositions relative to the depreciation of assets, the reinvestment of profits, revaluation of assets etc.

The Federal Government counts within its fiscal legislation, with measures to grant to the industrial sector flexibility in those fields to do with the depreciation of assets, re-investment of profits and the revaluation of assets.

So far as the depreciation of assets is concerned, the Income Tax Law in force regulates the depreciation for fixed tangible assets and the amortization of fixed intangible assets of costs and deferred charges as follows:

(i) 5 per cent for amortization of fixed intangible assets and deferred charges;

(ii) 5 per cent for depreciation on buildings and constructions;

(iii) 10 per cent for depreciation of machinery and equipment and not falling within the following section, and

(iv) 20 per cent for depreciation of transport equipment, rolling stock, shipping and aircraft, machinery for the building industry and shipping employed by the wine and distilling industry.

The above percentages are based on the amount of the respective original investment, but the Secretary for Home Affairs and Public Credit may authorize the application of greater percentages.

On the other hand the department referred to, in order to encourage economic activity, grants to industry, agriculture, cattle or fishing concerns the chance to resort to "accelerated depreciation" of machinery and equipment through agreements of a general character which indicate which branches of production may benefit from these privileges, the methods applicable, the period of their duration and the requisites with which the interested parties must comply.

So far as the reinvestment of profits is concerned, opinions within the Secretariat for Home Affairs and Publuc Credit have recently undergone a change highly favourable to economic growth through the suppression of the Tax on Distributable Profits, setting up in its place a tax on Distributed

/Dividends (within

Dividends (within the modifications to the Income Law carried out during 1965), by which it is only now accepted that profits may pass to the control of an actual person, allowing him the free use of profits for reinvestment. Furthermore, the tax is not applied when profits are capitalized or distributed as shares.

The revaluation of assets was found to be directly affected by inflationary phenomena for which reason the Federal Government, empowered by the Income Tax Law uses varying criteria; the first, of a financial character, consists in not giving fiscal effect to the revaluations of its fixed assets or capital and the second which has essentially a fiscal basis.

(c) Other fiscal dispositions which influence industrial development such as those relating to systems of exemption, subsidies, etc.

Methods of stimulating industry through taxation are granted at all levels of government, federal, State and municipal. Nevertheless, in view of the magnitude of fiscal charges, of the greater variety of sources of tax in force, as well as the volume of operations with the Federal Government, the determining factor is the fiscal help stemming from it, even though the two other levels of government do operate certain measures of fiscal incentive.

Among the most outstanding measures, considering the beneficial effects on industrial development, are:

(i) The Law for the Fomentation of New and Vital Industries. This Law came into force in the year 1955 in substitution of the Law of the Transformation of Industries.

The exemptions and reductions are granted on the following taxes: (a) on imports, applicable to construction materials, productive material and equipment, safety equipment and allied materials, raw materials, rescue materials, parts and items indispensable for plants and manufactures of electric energy, if these are not produced in the country in the quantity and of the quality indispensable; (b) on exports; (c) on stamps; (d) on business profits, on those parts for which the Federation is responsible; (e) on income.

Exemptions on import duties, on business profits and on stamps, are generally granted at up to 100 per cent of the tax; those on income fluctuate between 10 and 40 per cent of the tax on profits.

/(ii) Subsidies.

(ii) Subsidies. This form of stimulating national development was initiated around the year 1936, its legal basis being The Organic Law of the Federal Budget which grants ample faculties to the President of the Republic, who exercises them through the Secretariat of Home Affairs and Public Credit.

It can be said that this is a system which complements the Law for the Development of New and Vital Industries and benefits those which because of their characteristics do not come under said Law. The subsidy which may be by exemption or reduction, may be granted within any of the taxes under the fiscal system.

Among the industrial branches favoured are steel, electric articles and apparatus for industrial use and balanced diets for poultry and cattle.

The subsidies most used and which bring a direct stimulus to industrial growth are those listed below:

(a) Those incidental to the exploitation of natural resources, derived or allied, such as that granted on taxes on the exploitation of forests; this subsidy is applied to the exploitation of candelilla wax, anti-scorbutics, zacaton root, and the employment of common woods and pine, 75 per cent, 50 per cent, 50 per cent and 50 per cent of federal participation being granted respectively.

(b) Subsidies for the production of metallic and non-metallic minerals, metals, metal compounds which have as their object the developing of mining activities; for this purpose reductions of up to 75 per cent of the tax on production are granted.

(c) Subsidies for the production of salt. Taking into account that this is an article of primary necessity, together with the high costs of exploitation, a subsidy of 0.02 pesos per kilo has been established, which operates automatically and as soon as the salt is transported to the centres of consumption.

(d) Subsidies affecting taxes on production and sale of industrial goods and services. Through these the State regulates the production of and trade in these products. For example: subsidies to producers of alcohols, aguardiente and sugars; to the consumption of cotton; to the sale and purchase of ixtle de lechugilla; to the import of liquid gas, to the producers of

/processed tobacco;

processed tobacco; to the tax on vehicles driven by diesel motors or adapted to be used with liquid petroleum gas, which is conceded to those who contribute to federal service of public auto-transportation; to cement production and to others.

(e) Subsidies to the tax business profits from the export of manufactured articles. This measure together with other methods is intended to stimulate foreign trade.

(iii) Rule 14, which forms part of the Tariff of General Duties on Imports, grants special treatment to combined imports of machinery to be used in the industry of transformation. To be liable for this benefit it is indispensable that the machinery desired to be imported should not be produced in the country of the quality and of the characteristics required.

(iv) The National Frontier Programme, offers fiscal stimulus to those producers who move to these areas and consists of 100 per cent reduction of tax on business profits and 50 per cent on the transport of merchandise on the railways.

(v) Laws for industrial development. The Federal entities, with the object of speeding up industrial activity within their geographical borders, have almost all passed laws showing interest in the establishment of industries, by which they accept the fiscal sacrifice represented by tax exemption for 30 years, which affect commerce, industry, property and, in some cases registration duties.

5. Legal treatment of foreign capital and enterprises

(a) General orientation of policy relative to foreign capital and enterprises and eventual limitations in those fields within which such capital is authorized to be applied

In Mexico foreign investment is regarded as a means of helping industrial development, both for its introduction of new sources of investment as well as for the technical knowledge which may derive from it.

Mexican legislation on foreign investments is limited to specific matters or industrial fields. Norms relating to this can be found in the Political Constitution, in the General Law of Population, in the General Law on Trading Companies, in the Law on Nationality and Naturalization, in Presidential Agreements, in resolutions of the Secretariat for Foreign Affairs, in decrees etc. but, in actual fact, no specific law exists dealing with foreign investments.

/The General

The General Law on Business Companies lays down the pre-requisites which foreign concerns must fulfill in order to have legal status. The exacted conditions of foreign investors are set out in the General Law of Population and its regulations.

There has existed, since 1947, a Mixed Intersecretarial Commission, specially created for the regulation of investments of foreign capital, based on a decree of 1947, in the specific cases of those investors who do not desire to hold a more than 49 per cent partnership in any business enterprise. Nevertheless this disposition still applies to the following fields:

(i) Broadcasting;

(ii) Production distribution and exhibition of movies;

(iii) Air transport when operating within Mexican territory or national airlines;

(iv) Urban or inter-urban transport;

(v) Fish breeding and fishing;

(vi) Production, distribution and sale of non-alcoholic whether carbonated or not, industry syrups, essences or concentrates used in their preparation; it includes the bottling of fruit juices;

(vii) Coastal transport;

(viii) Rubber industry;

(ix) Printing and publicity;

(x) Basic chemical products and petro-chemicals; the last mentioned industry is subject to a special regulation that lays down that firms must obtain prior authority from the Federal Executive for secondary petro-chemical projects since the basic petro-chemical industry is reserved for the State.

For the rest, in industry in general, the foreign investor is allowed a free hand, although the Government tries, encourages, by persuasion, concerns with mixed capital in a proportion of 49 per cent foreign and 51 per cent national. In some cases where enterprises wish to take advantage of the Law of New and Vital Industries to obtain fiscal benfits they are guided towards an association with national capital.

/The above

The above criteria are followed in cases where specific manufacturing programmes are followed, since their approval implies the adoption of measures of protection on the part of the Secretariats of Industry and of Home Affairs and Public Credit.

(b) General indication of exchange and fiscal treatment granted to foreign capital

In Mexico there is free monetary convertibility. Our fiscal laws are general and not discriminatory. Thus there is no differential treatment.

(c) General indication of measures of other kinds which eventually found to be in force for foreign concerns

There is no important measure which gives discriminatory treatment to foreign enterprises or to the majority of foreign capital. In special cases when exemptions from taxes or special government credits are requested, preference may be given to those concerns which have the greatest amount of Mexican capital.

6. The policy of promoting manufactured exports

With the object of increasing sales abroad, various policy instruments are used, among which the following are outstanding:

(a) Tariffs

Exports are practically exempt with the exception of those which for reasons dealing with protection of reserves of natural resources, fiscal reasons, internal supply or the possibility of their being industrialized, might justify a tariff. On the other hand there is free export of products with added value of consideration.

(b) Commercial advisers

The Secretariat for Industry and Commerce, together with the National Bank for Foreign Trade, maintains a staff of Commercial Advisers whose work is directed through the Co-ordinating Committees of the Activities of Commercial Advisers abroad. Its work consists, fundamentally in promoting Mexican sales, using every means within its power, although it is not authorized to carry out any type of commercial operation. As concrete examples of its activities, we have the obtaining and transmission of offers for national products, the investigation of any data relative to the country in which they are stationed, the preparation of plans for action by the commercial missions, the preliminary drawing up of agreements etc.

(c) Fairs and expositions

Mexico takes part, officially in an average of 10 international fairs a year, with the object of helping national industry by providing it with an important means of making its products known abroad. Participation in such events is subject to a plan which is drawn up annually, after analyzing the advantages offered by the different invitations and everything relative to trade with the promoting country and those making up the zone of influence of the fair.

For these events it is considered wise to accept the economic collaboration of the private sector, in this way stimulating its interest in the active participation in fairs and expositions.

(d) Operations of compensated interchange

By this system the placing abroad of merchandise surplus to the national market is achieved, in exchange for allowing the import of articles in demand in the Mexican market.

Of the total value, from imports as much as from exports in the year 1964, 51.9 per cent of the former and 21.9 per cent of the latter were carried out by compensatory exchange. The principal countries with whom this system was employed were the United States, Japan, Germany, France, Spain, Italy, England, Switzerland and Holland.

Among the products negotiated were, among others, machinery and varied equipment, vehicles and assembly materials, locomotives and materials for railways, electrical material, raw materials, paper and cardboard.

(e) Subsidies for the imports of goods helping to promote exports

National producers exporting their products are granted subsidies for the import of raw materials and materials which serve to obtain the exported materials always and when national industry makes a worth while contribution.

(f) Fund for the promotion of export of manufactures products

This organism helps exporters to finance their clients by medium term credits, as well as lower their costs of financing, insurance, reinsurance and transport, as well as guaranteeing to the exporter the recovery of the credits granted.

(g) Law for the promotion of new and vital industries

This grants advantages of exemption from import taxes, taxes on business profits and on income as already outlined.

(h) Unions and associations of producers and exporters

It is the policy of the Secretariat of Industry and Commerce to support all those agreements between producers in the same field which have as their object the joining of their efforts to achieve greater sucess in the sales abroad and bettering the quality of its products and delivery dates, as well as obtaining better prices under competitive conditions by lowering these by pooling costs of propaganda, representation, etc.

In the said agreements it is stipulated that lists of goods which are the objects of the interchange and the amounts of each of these up to a predetermined value must be submitted. With countries which do not follow a free system of exchange, payment agreements are reached to obtain disposable foreign exchange so that their importers may cover their transactions with Mexico. Agreements have been signed with 18 of these.

(i) Conferences and meetings on trade at regional and world level

Our country has taken part in all international counsels which it was obliged to attend in compliance with its obligations to supranational bodies such as UN, ECLA, ALALC, etc.

(j) Commercial missions

With the object of achieving a closer relationship between national importers and exporters and other countries of the world, the formation of commercial missions has been sponsored, integrated by public functionaries and representatives of the private sector. This type of mission has visited Europe, Asia, Africa and member countries of LAFTA, promoting the sale of Mexican products and studying the general conditions of trade between our country and those visited.

The experience acquired by these missions is of great value to exporters, since it allows them to acquire a greater knowledge of those markets where it is possible to place their products, to make adequate trade agreements, to form concrete ideas of the conditions of their products, obtain information about obstacles and problems they have to face, etc.

/So far

So far as the Public Sector is concerned, these missions have been permitted to form their judgment as to the necessity of coming to agreements, number commercial advisers and, in general, fix political measures tending to increase the foreign trade of our country.

(k) Advice to exporters

Various organisms of the Public Sector offer data and information as to markets abroad, products in demand, institutional in the exporting country, duties, producers with export capacity, etc. With the recent setting up of the Information Centre for Foreign Trade, there is a tendency to centralize the collection and distribution of these elements of information as an effort on the part of the Government to help exporters.

7. Dispositions relating to light minor industry

More than 50 per cent of industrial establishments come under the heading of small industries. Based on the accounted capital registered in the 1960 industrial census, and considering that they have been accepted as small and medium industries those that operate with a minimum of their own capital of 25,000.00 pesos if they are situated in the provinces and 50,000.00 pesos if they operate in zones of high concentration such as Monterrey or the Federal District and outskirts and up to a maximum of 10,000,000.00 pesos, it is estimated that there exist 56,562 establishments of this size. Thus percentage excludes the group of artisan type industries which is very important in the provinces.

Because of their number and their contribution to the value of production the sector of small and medium industry constitutes a very dynamic element in the process of industrialization. Its working personnel represents 75 per cent of industrial occupation; its investment, although small per business unit, as a total is equivalent to 63 per cent of the total investment in the industry of conversion, and the production it obtains is equal to 73 per cent of the total for the entire industrial sector.

The State helps small and medium industry in the solution of one of its basic problems, which is that it has no access to sufficient or cheap credit. The problem of industrial financing affects all branches of industry and almost all businesses, whatever their size; but it bears more hardly

/on small

on small and medium industries, due to the fact that credit to industries thus classified presents great risks and its management and administration is much more onerous in relation to other types of credit; further, its deficiency in technical and administrative control, its lack of accounting systems, its lack of financial programmes and the absence of control of costs and personnel, make this type of enterprise poor subjects for bank credit.

To overcome this state of affairs in view of the necessity of supporting the existence and development of this type of industry, the Federal Government set up, on December 28, 1953 a special trust, the Guarantee and Development Fund for Small and Medium Industry, managed by "Nacional Financiera Ltd." for granting, through enterprises of private credit, credits at a low rate of interest and adequate amortization rates.

The Fund was established as a Trust between the Secretariat for Home Affairs and Public Credit and the "Nacional Financiera Ltd." its operations being regulated in detail and by agreement with authorities for Home Affairs; in this way the Federal Government is the trustee; the creditor the "Nacional Financiera"; the object of the trust is to grant credits to small and medium industries and the beneficiaries are the small and medium industries.

Its capital is formed by direct contributions from the Federal Government, by the profits it obtains from its operations, the value of the share it emits and, in lesser degree, the contributions of the governments of the States.

Its technical Committee is made up of two representatives of the Government, two bankers of the private sector and two representatives from industry. The Committee is empowered to draw up instructions for the efficient management of the Trust.

The legal structure of the Fund was established by the Law dealing with the Fund of Guarantee and Encouragement of Medium and Small Industry, published in the Official Gazette of December 30, 1953; Operating Rules laid down by the Secretariat for Home Affairs and Public Credit of April 6, 1954 and the Contract of Trusteeship drawn up between the Federal Government and "Nacional Financiera Ltd." of April 7, 1954.

/In setting

In setting out its motives, the law states that the reasons for the creation of this instrument of credit is the chronic scarcity of financial resources for medium and small industry.

The creditor, (NAFINSA), is authorized to carry out the following operations: (a) the discount of credit documents to private banks, originating from the type of industry in question; i.e. the Fund guarantees up to about 200,000 pesos deposit banks and financing companies the credits they grant or concede to small and medium industries, with a limit, in each case, of up to one million pesos; (b) this method of working constitutes an ample support for the Fund, since it implies that the industrialists can count on a safe buyer for the security they issue whether there is a market for such security or not; (c) the acquisition of guaranteed financial stock for specific industries and (d) authorization to discount those credits which financial concerns and banks grant small and medium industries for efficiency, construction or replacement.

Credits for proficiency and technology may be for up to a million pesos and for replacements up to two million and when both types of credit are granted to a single industry, their combined contribution may not exceed 2.7 million pesos. For the purposes for which they are intended and period of amortization, these credits are suitable for the expansion of industries of this type.

Up to date, 3,200 industrial concerns have received credits from the Fund, a proportion that hardly signifies 5.6 per cent of enterprises considered as medium or small; nevertheless the small number, the economic significance of this group is obvious, since it forms a computable capital of 3.7 million pesos; it produces annually an average of 6,000 million pesos and gives work to 125,000 workers.

The small number of concerns who benefit from the credits is due more to the fact that the existence of this organism is not known than to difficulties of access to the system, since its terms are relatively liberal even when, naturally, capacity to pay on the part of the recipient is studied. In effect, three estimates or classifications of applications are carried out; the first by the industrialist himself who, on applying for the credit must present to the private banking institution his programme of investment and the data which justify this programme; the second, by the bank itself, which analyzes the guarantees of payment and the experience of the applicant and, lastly, by the Fund, which examines the programme of investment taking into account the advantages the credit represents to the industry and its development possibilities.

With these necessary precautions, the Fund recovers its advance with complete normality, without any advance overdue, thus ensuring a constant and continous flow of credits.

As from February 1, 1964 the resources of the Fund were up to 262.8 million pesos whose make-up indicated that 45.6 per cent, that is 120 millions, were from Government contributions; 15.9 per cent, equivalent to 41.9 millions, represented profits of the Fund and the balance, 38.5 per cent represented credits from IDB, of which 70 per cent have been utilized, 32.0 millions being still available.

A number of concerns have been granted credits several times and thus, in fact, the total number of credits granted by the fund since its foundation up to February 1964 rose to 5,690 with a total of 1,125.8 million pesos. The number of credits granted annually has risen steadily, since from 99 credit operations classified in 1954, the first year of the Funds existence, by 1964 these had risen to 672.

Of this total of credits granted in 1964, the greater proportion, 64 per cent, corresponded to credits for agriculture and mining working capital, with an amount equal to 90.6 million pesos, equivalent to 54 per cent of the total granted. This form of the composition of the credits, (there should be more financing for agriculture and mining and more replacement credit) is constant over all the period, which can be explained by the very structure of the industry of small and medium industry, characterized by a very low organic capital composition. In further proof of this statement, it can be seen that credits are totally predominated by small amounts of up to 300,000 pesos per concern with a proportion of a little more than 80 per cent of the total number of credits granted.

If it is noted the use to which these are put, it can be proved once again that they are almost always to the immediate supply of raw materiales.

In spite of the fact that numerically the greater proportion of medium and small industrial businesses are situated in the provinces, the greater part of those with credits, 53 per cent, has been authorized in favour of those concerns located in the Federal District.

In order to support economically also, those small industries organized as co-operatives, in 1944 there was created the National Bank of Co-operative Incentive, whose aims, established under their own organic law consists in financing co-operatives and artisans.

Its initial capital was of 11 million pesos, which as increased gradually through contributions by the Federal Government, by Capital Subscription, that is to say by the formation of directed trust, intended, amongst other objects, to help the fishing industry and artisan industry in this last case it has tried to offer technical and administrative aid to the show people.

The National Bank of Co-operative Incentive considers as small industries those family or domestic units which dedicate part of their production to home consumption and offer the surplus on the market. In the majority of cases the Bank grants credits to these small centres of production credits up to 1,000 and 5,000 pesos.

During the first year of operation, (1944), the Bank of Co-operative Incentive granted credits to the value of 4.7 millions of pesos, especially favouring the salt industry, which this year received 32 per cent of the total used; two decades later, (1964), the amount distribuited rose to more than 240.4 million pesos destined in its majority to branches to do with sugar, tanning and shoe making and artisan work in its various aspects.

It should be emphatically pointed out that the measures to foment small industries cannot be expressed in specific terms, because all policy to do with industrialization has as its most solid and universal base the Political Constitution of the United States of Mexico. Nevertheless there exist legal dispositions and specific regulations for the granting preferential treatment to small industries and among these can be mentioned:

(i) The Law for Promotion of New and Vital Industries under which these can be exempted from the presentation of the economic study necessary to take advantage of this law, as laid down in the relevant regulation.

/(ii) From

(ii) From the fiscal angle the Income Tax Law and the Law on Taxes on Business Profits, establishes a special treatment for all those minor producers, that is to say those who earn up to 150,000.00 pesos amongst which it can be asserted that small industry is included.

(iii) In order that financial resources should be made available to the medium and small industries, in the year 1953, through the Law of December 28, a Guarantee and Incentive Fund for Medium and Small Industry was set up, by means of a Federal Government Trust which in 1964 reached an amount of 120 million pesos and had made profits on its previous trading of up to a round figure of 42 million independent of credits granted in favour of the said fund by different institutions, international and national.

(iv) The credits granted by the National Bank of Co-operative Incentive, S.A. and C.V. for the period 1965-1966, (September 1 to August 31), were of 333 million pesos, showing an increase of 12 per cent in round figures compared with the immediately preceding period, but the industry still received credits for an amount equal to the previous period and was 264 millions of pesos distributed as follows:

Industry	Credit obtained, (in millions of pesos)
Sugar	15
Fishing	85
Footwear	13
Salt	10
Cement	3
Textiles	2

Credits granted by National Bank for Co-operative Incentive may be considered in general terms as being granted to small and medium industry except those granted in the cases of the sugar, press and cement industries, branches in which there exist sufficiently big co-operatives for it to be unfair to consider them as medium or small industries.

/(v) Enterprises

(v) Enterprises engaged in sub-contracts hardly exist in our country because our industrialists almost always think in terms of vertical integration and because they pay great attention to the size and importance of their maintenance plant, and thus eliminate, to a large extent, possibilities for sub-contracted concerns or direct contracts for the manufacture of parts and industrial replacements.

(vi) The existence in our country of small parks of small establishments is almost null; it would be more accurate to say that the creation of some of these are constituted through some artisan industry whose evolution has today brought him into the category of small or medium industry; thus we have:

- The shoe factory of Leon Guanajuato and Guadalajara-Jalisco.
- The pottery plant of Tlaquepaque, Jal.and Guanajuato, Gto.
- The wool textile factory in Tulacingo, Hgo. and Toluca Mexico, etc.

(vii) Industrial co-operatives as at August 31, 1966 numbered 414, made up of 30,821 members; the number of these co-operatives who sought financial assistance through the National Bank of Co-operative Incentive was not available.

(viii) Organisms which offer their help and technical advice are, among others:

- Nacional Financiera, S.A., Bank of Mexico, S.A., Institute of Technological Research, Laboratories of Promotion, National Centre of Productivity, etc.

(ix) One of the most relevante measures in industrialization and principally for small and medium industry is the control of imports since through the system of import licences the introduction into the country of products which can be supplied by local industries is avoided; this is equivalent to a qualitative protection which often surpasses heavily the quantitative one established through tariffs. This protection has succeeded in an extraordinary strengthening of the internal market of many national industries and thus has permitted their development and growth, often in spite of the different comparative costs.

/8. Direct

8. Direct State promotion through Public or mixed enterprises

(a) There exists considerable difficulty in being able to evaluate the Governments experience as business entrepreneur; nevertheless the results obtained conjointly from the different enterprises controlled by the Government show encouraging enough results as to the efficiency of operation of the majority of the concerns constituted by the Federal Government since these have undergone an expansion of their productive capacity, which denotes that their coefficients of progress and therefore of their investments are, in general, sufficiently acceptable. As a consequence of all the above the financial results obtained have permitted in some cases the auto-financing of the expansions.

(b) The present situation as to existing public enterprises, their number, legal standing, administrative and financial systems adopted for their functioning, their participation in the production of the respective sector and other important characteristics

The total number of State enterprises at present is about 1,400, those of a strictly industrial character being in a noticeable minority within the general picture, since 48 of such enterprises are represented and which work in the following fields:

(i) Railway wagons,
(ii) Automobiles, trucks and autobuses,
(iii) Spinning and weaving of cotton, wool and artificial and synthetic fibres,
(iv) Petrochemical industry,
(v) Pharmaceutical industry,
(vi) Fertilizers,
(vii) Paper and cellulose,
(viii) Metal products,
(ix) Construction machinery,
(x) Steel
(xi) Mineral coal and coke,
(xii) Petroleum and its derivatives,

/(xiii) Cement

(xiii) Cement and other materials for construction,
(xiv) Non-ferrous metals, and
(xv) Articles for food.

These concerns function legally under the same conditions as the private sector, without privileges, exemptions, facilities or obligations not shared by others.

Public enterprises are Limited Companies, organized according to the respective laws and have an administrative council which, in its turn appoints a director or manager and are directed by a Board of Government for Decentralized and State Participating Enterprises, which functions in the Secretariat of National Property. The Board has as its essential function that of the care and supervision of the activities of all those concerns directly connected with State resources.

The participation of the production of public enterprises of an industrial character, within the sector in which they act is variable in the extreme; it runs from a contribution of 100 per cent to the national offer, as is the case of Mexican Oil and the National Construction Company of Railway Wagons Ltd., to relatively reduced percentages as could be the case of the National Chemical Pharmaceutical Co. Ltd., in some chemical products. It is interesting to point out that in some cases, in which originally public concerns controlled production in that field, these have later, due to the participation of private enterprise, yielded ground to the latter. Such is the case in the production of tinplate in the "Altos Hornos de México" and the intervention of Tinplate and Laminations Ltd., a private enterprise.

9. The policy of Regional Industrial Development

In the Republic of Mexico where serious problems of industrial concentration have arisen over the last 30 years, since this process has been carried out without a plan for siting; this problem manifests itself in pressures on the services of water, electric energy, transportation, labour, housing, etc. Nevertheless, the greatest problem arises out of accentuation of the inequalities in development in different regions of the country.

/For this

For this reason and with the object of creating industrial activities to stimulate the development of those zones that possess raw materials, cheap labour, means of communication, electric energy, water, etc. and, finally because it is considered that the process of development should be harmonious throughout the whole country, it is tried to guide investors in order that, within economic considerations, they should set up their enterprises away from the Federal District, from the State of Mexico, from Monterrey and Guadalajara.

With this object a comprehensive work of promotion is being carried out with the object of creating industrial activities in those regions of Mexico which offer possibilities for their siting. For this, stimuli are granted such as municipal, State or even Federal exemptions, erecting electrical energy networks without additional cost to the business man together with reductions in rail freights, granting of land etc.

Parallel with this, the Secretariat of Industry and Commerce maintains a close contact with all States of the Republic which have organisms for industrial promotion. To satisfy these objectives rapidly, intense work is being carried out to attract industrial investors, to those who provide complete information as to the cost of the resources existing in the region.

Elements which are obstacles to this policy in the province are to do with the lack of technicians, skilled labour, cost of electricity, distance from centres of consumption, the size of the regional markets and the cost of inputs, all of which, taken jointly imply high costs of production.

10. Labour training programme

The national system of education tries to train the individual better in order to increase industrial productivity. It is based, fundamentally on the:

(a) Preparation of the student at secondary school level in such a way that he will obtain a training which will make him useful to the country even in the case of desertion;

(b) Reorganization and adaptation of teaching in technical secondary schools which serve the student for secondary or higher technical education;

/(c) Re-structuration

(c) Re-structuration and adaptation in 109 systems of teaching in technical vocational schools;

(d) The setting up of technical schools at a sub-professional level, with course of 2 to 4 years to follow secondary technical and traditional courses;

(e) The creation of technical courses at professional level in technological regional institutes and in State Universities, proceeding to their structuralization in accordance with the necessities of the region;

(f) The establishment of national centres for labour training;

(g) The setting up of Research Institutes and post-graduate courses in the principal education centres and

(h) The creation of short courses for specialization at different levels.

Due to the scarcity of trained labour the Centres for Training for Industrial Labour were founded in 1963 which offered a realistic and practical solution to the problem, in part.

The Training Centres, more than a school, represent a small industrial nuclei which unites the true characteristics of the centres of work. Respect for orders and the system of work are inculcated and in the technical field a knowledge of tools and working materials and their specifications is imparted.

The teaching programmes were prepared by trained personnel who, because of their own experince in labour, know the real necessities the student will have to face after his preparation.

At present there are 30 training centres. In each those industrial specialities most necessary to the community of the zone where it is situated, are taught, and it is interesting to note that the directors of these centres adopted the policy of changing the location of those which had fulfilled their mission in the region and thus avoided training an excessive amount of labour in a predetermined zone, thus avoiding the risk of making certain specialities unnecessary. This change was made on personal initiative or at the request of the industrialist of the zone in question.

/The work

The work carried out during these two years has been fruitful, since up to March 1965 14,640 persons in the whole Republic had been trained in distinct specialities, while at present a further 18,000 are under training, a figure it is hoped to duplicate within 4 years. As from 1965 it is hoped to be able to prepare 40,000 persons in these centres each year in 60 schools located throughout the whole Republic.

Specialities taught are as follows: adjustment of bench and machine tools, soldering; industrial drawing; auto work; mechanical spinning, electricity, cutting and making; industrial tailoring; radio and television; industrial electrical installations; industrial electrical maintenance; repair of domestic apparatus; motor winding; brick-laying and concrete work; sanitary and gas installations; iron work in building; carpentry in building; domestic electric installation; printing on cloth; industrial finishing; carpentry and cabinet making; upholstery; curtains and cupboard; transmission and power brakes, chassis and aligning; internal combustion engines; ceramics; builders mate; silver work; agricultural mechanics; preservation of foodstuffs; farming activities and artistic spinning.

The list of specialities is not considered definite, but only as corresponding to current necessities.

So far as semi-professional training is concerned, the National Polytechnic Institute has a training school for the following specialities: technical mechanic; technical electrician; technician in electrical communications; diesel technician; automotive technician and technical constructor.

All these cover a cycle of studies of four years. The school has technical installations where the students receive practical instruction in their matter and have machinery suitable to their own speciality, having at their disposal shops and 15 laboratories.

The number of students in 1965 in each speciality was as follows: technical mechanics 722; technical electricians 490; technicians in electrical communications 375; diesel technicians 230; automotive technicians 291 and technical constructors 207.

The Secretariat of Public Education, in co-operation with UNESCO, with a contribution of 896,000 dollars on the part of the special fund of the United Nations and a fund of 1,095,000 dollars on the part of the Federal Government, for a period of five years, created in 1962, the National Training Centre for Technological Teaching, which has as its object the training of professors for secondary and special technical teaching, and who will have to carry out their duties in the technological institutions at elementary and secondary level. It is hoped that in the first five years of operation, some 500 teachers will graduate from the centre, who will, in their turn, contribute to the teaching of some 6,000 technicians destined for regional institutions and industrial schools. Initially those who will be selected for incorporation will be specialist in mechanics, electricity and construction, to be followed by those in steel, metallurgy and industrial production.

The Industrial Technological Institutes will be directed towards the preparation of specialists at different specialities and at different levels. In these are taught:

(a) Secondary teaching and diverse activities: mechanics of machine tools, of internal combustion engines, welding, forging, carpentry and cabinet making, modelling, smelting, the graphic arts, cutting out and making, etc.

(b) Specialized technical courses in: radio and television, electrical repairs: the mechanism of internal combustion engines: machine tool mechanics; steel; the industrial use of wood; chemical laboratory assistants; farming; oil well drilling; fishing; foremen for fish embarkation; naval construction; cellulose and paper manufacture; alcohol sugar; industrial security; accountancy; and executive secretaries.

(c) Professional instruction, graduating in industrial engineering, mechanics, and chemical industry.

These institutes are to be found in different parts of the Republic. During 1964 the number of students inscribed in these reached 12,524.

Social Security trains workers in distinct specialities. To this end there was established in 1962, the first training unit called Unidad Morelos. In it technical instruction is given, first to those who are insured, and if there is room to anyone who applies.

/At present

At present there are already 6 units in existence where courses are given in different workshops: 2 in the Federal District and 4 in the interior of the Republic; the first two are the Unidad Morelos founded, as stated in 1962 and Cuauntémoc, in July 1963; the others correspond to Monterrey founded in 1963, to Jalapa in November 1964, to León in September 1964 and that of Zacatecas which is about to be opened.

The courses last for ten months with a training period of three hours per day, and include, in addition to the speciality as such, the study of mathematics, drawing, physics, and everything to do specifically with Civics, History of Mexico and its Geography.

The present attendançe at these centres is of 2,040 students and the graduates already reach 1,470 specialized workers.

11. Services of productivity and industrial expansion

Within the organisms responsible for the increase of productivity and lending technical assistance to it, can be found, fundamentally, the National Centre of Productivity A.C. originally called the Centre of Industrial Productivity. It was founded in 1955 with the technical and economic help of the United States, like centres of productivity in other countries of the world.

Since 1962 its financing has been carried out entirely with national resources, with the object of serving pre-determined objects such as the diffusion of the concept of productivity, the organization of courses for supervisors, managers and business administrators and the promotion of travels for the study of productivity abroad etc.

Collaboration from abroad has been reduced to technical assistance through professors, experts, scholarships, technical equipment, contributions in cash having ceased.

In June 1965, the Centre changed its name, constituting itself a civil association, as a result of the pooling of efforts and resources of the worker, owner, industrial and federal sectors, included in this last being the Nacional Financiera Ltd. and the Bank of Mexico Limited. The constitution of this centre as a civil association, did not merely satisfy the requirements of a legal requisite, but at the same time implied the relating of

/the closest

the closest harmonious activities between the different sectors involved; a wider sphere of activity and a definition of intention fitting in with the educational plans and those of industrial development.

The National Centre of Productivity counts on larger resources than it had in the past; until 1965 it had an income of approximately 2,880,000 dollars and, during the next five years, the National Service for Rapid Training alone will demand a sum of 5,240,000 dollars which, together with the annual contributions of the Secretariat of Home Affairs and Public Credit and of the Nacional Financiera S.A. of 6.3 millions, it will reach a total amount of 93 million over the five years.

It should be noted that the contribution to the National Centre of Productivity on the part of the Federal Government, the Nacional Financiera S.A. and the Bank of Mexico S.A. reach 25.76 millions or 71 per cent of the total contributions.

The Government of the United States contributed with up to 12 per cent of the total, that is 4.37 millions, the Confederation of Industrial Chambers contributing 3 per cent; the rest was made up from income from courses taught and other sources.

The programme for the National Service for the Rapid Training of Labour (225,000) persons was carried on with the co-operation of the special fund of the United Nations through the International Organization of Work of the Secretariat of Industry and Commerce through the National Centre for Productivity.

The contribution of the United Nations reaches 1,280,040 dollars and that of the Federal Government 3,641,560 dollars, making a total of 4,921,600 dollars.

The programme will have a duration of five years and its central aims are the following:

(a) The training of industrial supervisors with the object of qualifying them to give technical instruction to skilled workers.

(b) A greater training to instructor supervisors who will at present be employed on educational work and training.

(c) A greater training in theoretical knowledge and practical skills to workers who have received special training, with the object of improving skilled labour.

/(d) Preparation

(d) Preparation of didactic material and information required to increment and implement the programmes above mentioned.

(e) Research into, promotion and supervision of programmes for rapid training on the part of the central executive unit, of mobile units and industrial enterprises and

(f) To serve as a consultant to those concerns interested in participating in the programme.

The Service will consist of three principal parts: the Central Unit, the Regional Offices and the Mobile Units.

The Central Unit will be a centre of research into the necessities of national industry as related to skilled labour, and of a laboratory to set up, correct and perfect, in accordance with requirements, the methods of teaching, programmes for the training of workers and the materials necessary. This Unit will be stationed in the Federal District or within the State of Mexico.

Regional Offices will serve all sectors of the country, taking charge of contacts with industries, facilitating research, as well as the application methods to be developed for the training of skilled labour. These offices will be established in Monterrey, León, Toreón, Guadalajara and Veracruz. Later there will be others in Chihuahua, Culiacán, Hermosilla, Mérida and Oaxaca.

The Mobile Units are vehicles equipped with everything necessary to form instructors which apply their method and the programmes of the National Service, directly in the working centres. The enterprises will thus count on what is necessary for the instruction of supervisors and highly skilled workers for the industrial plants who need labour trained in the techniques included in the programme.

The Mexican Institute of Business Administration A.C., is another essentially private concern directed towards the study of methods of improvement of productivity and the teaching of the same. A body similar to the foregoing is the Mexican Institute for Scientific Business Administration, backed by the Confederation of proprietors of the Republic of Mexico. In it courses of Industrial Administration and techniques are given at medium level as well as courses for subprofessionals and capacitation courses.

12. Technological research

Those organisms which carry out industrial research with an industrial application are:

(a) The National Laboratories for Industrial Incentive, set up in 1949 under the auspices of the Federal Government, and institutions from the public sector; their personnel consists of 30 technicians and they can count on assets which reach 152,000 dollars.

Their activities include the fields of cellulose and paper, foodstuffs and medicines and yeast fomenting processes and includes various researches carried out for the benefit of private enterprises, the Government and decentralized institutions.

Further courses are offered whose duration varies between a year and a year and a half, where chemical engineering assistants work, who specialize in the fields previously mentioned; the number of assistants at present inscribed is 40.

Research plans for the laboratories in the field of paper and cellulose are directed to the obtaining of different types of paper, based on raw materials differing from wood; those of food and medicine are directed towards the best use of existing raw materials, in particular from those of the arid zones of the country; in yeast and fermenting processes, tending towards the best use of sub-products of the sugar industry.

(b) The Institute of Industrial Research founded in 1951 which is affiliated to the Institute of Advanced Studies of Monterrey, may count on the advice of the South West Institute of San Antonio, Texas. The entire body of the professors of the Institute of Technology and Higher Studies of Monterrey collaborate in its activities. Due to the fact that it is the initiative of private enterprise that generates its income, it is dedicated fundamentally to projects which come under their auspices.

The Mexican Institute of Technological Research A.C. established in 1950, with the Technical Advice of the Armadur Research Foundation, of the Institute of Technology of Illinois, has a staff of 88 technicians who specialize through 35 to 45 scholarships a year, who may be assistants or graduates dedicated to biological engineering, or biological, textile biochemical, mechanical engineering etc. and are working on technological research applied to national requirements. The duration of the courses is from one to three years and are made up of 33 per cent seminars and 67 per cent work in laboratories, which permits a training in the techniques and concepts of applied research.

The institute is auspiciated by three institutions of the public sector. Its assets amount to about 800,000 dollars. Studies are carried out, basically, in the field of applied bio-chemistry, cellulose and paper, experimental engineering, analytical research and chemical, mineral and metallurgical research, carrying out research into renewable and non-renewable national resources. Its financing was derived from 67 per cent from private enterprise and the remaining 33 per cent from government subsidies.

In 1962 it received a loan of 400,000 dollars from the Trust Fund for Social Progress to acquire laboratory apparatus and experimental equipment and to accelerate the advanced training and specialization of professionals as well as to better and widen its functions of scientific research and advice related to the industrial development of the country.

The studies and experiments which it carries out, includes those related to certain tropical woods, for the production of pulp for paper; the possibilities that Maquey offers as forage, the practical possibility of beans being used as source of starch, proteins and oils for industrial use; new processes in the production of iron and steel, through non-cokeable carbons and research into elements with a high protein content to improve animal nutrition.

13. Standards

This function has been handed to the Secretariat of Industry and Commerce, to the Directorate General of Standards which, since 1943 has worked to set standards for industry.

In 1945 the Law on Industrial Standards was promulgated, to set up a legal base for national norms, transforming them into official standards and making their application optional. This prevented the Director General of Norms from enforcing the carrying out of them obligatory, which constituted an obstacle for standards to achieve a national dimension demanded by the industrial and economic evolution of the country and by the consumer public for their protection.

/Under such

Under such conditions, in 1960 a new law, the General Law for Standards and Weights and Measures was passed, by which standards became obligatory for those products affecting the life of or bodily health of persons, for merchandise destined for export or articles which, because of their importance to the industrial development of the country, might affect in some form, the national economy.

Without considering that the present law has found the formula for the integral solution of our industrial reality, it can certainly be affirmed that it does lay down the necessary elements for the protection of standards at national level and even more, to attain levels comparable to those of international standards.

In order that standards be established at a national level, industrial sectors, consumers, technicians and scientists must intervene. This participation is channelled through the National Committee for Standards for each of the different industrial branches and through the Juntas for Standards in cases where no committee has been formed.

The national committees for setting standards for specialized branches, carries out directly its studies of standards after prior consultation with all the interested sectors. The document thus drawn up is sent to the Director General of Standards who submits it to a public inquiry for a period of six months, publishing it in the Official Gazette of the Federation; if, during this lapse of time, no observations of any importance have been received, it becomes the official standard.

Where no specialized national committee for standards exists, the Director General of Standards may take the initiative in setting standards for products, either on his own decision or at the request of manufacturers or users, but with the criterion of giving priority to those articles for direct public consumption.

The Director General of Standards prepares a draft for a standard which is sent for their opinion to the interested parties, producers, consumers, industrial and commercial chambers, official departments involved in the matter, professional colleges, scientific and technical institutes and Universities. Opinions so gathered are discussed at a Junta of Standards. The document so drawn is subjected to a public inquiry as described in earlier paragraphs, following the same process of that of a standard drawn up by a national committee on standards.

/It is

It is evident that, in order to carry out the above intention, the Director General of Standards needs the assistance of resources, both human and material. To this effect the Director General of Standards can count on the technical assistance of 80 professionals in different specialities, as well as 180 employees dedicated to administrative work. So far as material resources are concerned, the Director General of Standards can count on physico-metallurgical test laboratories, on laboratories for physical tests for accesories and portable containers for liquid petroleum gas, a chemical metallurgical laboratory, a laboratory for sugar and one for petroleum who all co-operate in the carrying out of studies on standards. Furthermore the Director General has available the standards laid down by all those countries which, together with Mexico, integrate the International Organization of Standards, (I.S.C.) and the Pan American Commission for Technical Standards, (COPANT); from these last mentioned organizations extremely valuable information is available, which permits us to know, by comparison, the state of development of our national industry. Decided collaboration can also be counted on from the technical personnel and from laboratories of other official dependencies, as well as from research institutes, the universities and industry in general.

It has already been said that one of the ambitious aims of the standards of a country is to play an active part in international standardization, as a means of increasing its foreign trade. In this respect Mexico, through its Directorate General of Standards, forms part as has been said of the International Organization for Standards of the Pan American Commission for Technical Standards; the first, responsible for carrying out studies at an international level and drawing up norms for world-wide application, the second being charged with setting up standards at a regional level and whose norms govern the Latin American Association for Free Trade, (ALALC).

To date, the Director General of Standards has laid down some 725 official standards.

/Chapter VI

Chapter VI

FOREIGN FINANCIAL AID

Financial assistance received from abroad during recent years has been characterized by the increase of foreign sources of financing, not only in reference to countries, but also because of the number of international organizations which have granted credits to Mexico, and which have been augmented by loans from the Interamerican Development Bank which, as from the year 1961 with a credit of 16 million dollars has come to be added to previous sources of foreign credit.

In 1962 the Agency for International Development by granting a credit for 20 million dollars destined to banking and financial institutions within the country, became another organization which granted credits to Mexico.

At present the countries which comprise the source of financial assistance have been increased by the agreements signed by the Nacional Financiera S.A. with Poland and Yugoslavia, in 1963, thus increasing the list of those nations which had previously granted us finance. (See again Table 43 and Tables 44 and 45.)

1. Origin and destination of the credits

For the year 1965, the list of countries which have granted credits to Mexico is as follows: Germany, Belgium, Canada, United States, France, Holland, England, Italy, Japan, Sweden, Switzerland, Poland and Yugoslavia, as well as such international agencies as the International Bank for Reconstruction and Development, and the Interamerican Development Bank.

During 1960 credits were available from abroad up to an amount of 286.4 million dollars of which 38.4 were earmarked for manufacturing industries, i.e. equivalent to 13.5 of the credits available during that year.

The industrial branch most benefitted during 1960 was that of petroleum and coal to which 32.4 million dollars were made available.

/Table 44

Table 44

MEXICO: DESTINATION OF EXTERNAL CREDITS REPAYABLE IN ONE YEAR OR MORE OBTAINED THROUGH NACIONAL FINANCIERA AS AT DECEMBER 31, 1964

(Thousands of dollars)

	Total obtained	Used in 1964	Credits in hand	Amortised in 1964	Obligations outstanding as at December 31, 1964	Interest, commissions and various charges in 1964
nufacturing industries	632 544	125 979	110 696	44 444	194 520	1 035
Food products	24 235	3 242	10 703	336	4 781	...
Drink	1 500	...	...	...	...	...
Textiles and clothing	20 401	18 205	...	1 140	17 964	...
Wood and its products	361	...	...	...	...	...
Paper and cellulose	29 433	5 706	621	1 039	10 489	...
Printing and press	77	...	...	...	...	...
Chemicals	66 223	35 587	...	3 580	45 632	...
Petroleum and coal	164 122	...	20 405	21 870	16 011	28
Non-metallic minerals	3 857	...	1 500	61	...	...
Basic metals (iron and steel)	108 712	22 592	16 584	3 865	51 645	724
Construction and machinery	7 702	2 348	...	32	2 496	...
Transportation material	144 069	38 179	1 150	12 521	45 482	283
Other industries	61 852	...	59 733	...	...	...
port fund for the private sector	100 000	...	...	72 313	...	979
nstruction	492 811	39 108	151 195	22 829	220 280	11 858

urce: Annual report of NAFINSA.

/Table 45

Table 45

MEXICO: DISTRIBUTION OF EXTERNAL CREDITS DURING PERIOD 1961 TO 1964 BY ORIGIN AND DESTINATION

(Millions of dollars)

	1961	1962	1963	1964
Origin	249.9	270.7	262.9	514.5
United States	99.2	114.1	77.0	189.1
International Organizations	11.5	23.2	80.9	99.0
France		28.0	32.0	38.8
Belgium		18.4		10.5
Canada		17.9	24.4	23.5
Switzerland	85.2	11.5		
Holland		8.5		
Germany		8.1		16.1
Italy		6.7	10.6	37.0
England			15.2	74.8
Others	54.0	32.4	22.8	25.8
Destination	249.9	270.7	262.9	514.5
Exploitation of mines		0.4	0.1	
Manufacturing industries	25.5	48.3	29.7	65.1
Import fund for private sector	75.0	15.0		
Construction	46.3	13.9	71.1	39.1
Electricity, gas and water	66.8	121.1	103.8	252.2
Banks and other private institutions	2.6	13.1	8.0	44.0
Transport and communications	33.8	51.4	38.5	55.3
Services		7.1	5.8	
Others		0.5	6.0	58.8

Source: Nacional Financiera, S.A. Sub-Management of Financial Studies.

Of the total disposable credits during 1960, 88.3 per cent was granted by the United States; 4.4 per cent was financed by the Federal Republic of Germany; 2.7 per cent was obtained from International Organizations and the rest was provided by Canada, France, Italy and Sweden.

During 1961 the amount of credits available reached 249.9 million dollars, a figure higher than that of the previous year; of this 39.7 per cent was granted by the Export Import Bank of Washington, United States; 4.6 per cent was obtained from the International Bank for Reconstruction and Development and the rest was granted by private banks and suppliers with which the National Financiera, S.A., has had dealings.

Manufacturing industries during this year obtained 10.2 per cent of credits available, being lower in percentage and quantity than in 1960.

In 1961 the petroleum and coal branch of industry continued to receive the greatest amount of credits, being followed in importance by the manufacture of transportation equipment.

In 1962 credits available began to increase again compared to 1961. The quantity available during this year was 270.7 million dollars and was obtained largely from banking institutions and contributors in the United States. France, in this same year granted 27.9 million dollars, equivalent to 10.3 per cent of the total credits available, an amount greater than that granted this same year by International Financial Organizations which provided 9.3 per cent of the total.

Manufacturing industries disposed of credits for 48.3 million dollars, a figure 95 per cent higher than that available to industry the previous year.

This sum of 48.3 million dollars available to manufacturing industries corresponds to 17.9 per cent of the total credits granted during 1962.

Branches of industry most favoured during 1962 were those of basic metals and petroleum and coal with 20.1 and 13.1 millions respectively, being followed in importance by transport equipment with 6.4 million dollars.

In 1963, 262.9 million dollars were obtained, 30.8 per cent granted by international organizations such as the International Bank for Reconstruction and Development and the Interamerican Development Bank; following in importance as a source of finance were credits from banking institutions in the United States which this year granted 77.0 million dollars equivalent to 29.3 per cent of the total disposable. Outstanding, also, for their importance were the credits coming from France which reached 32.0 million dollars, a figure that surpassed each of the previous years, and thus France becomes a source of great importance in foreign financing.

The manufacturing industries received less credits in 1963 from external credits negotiated during this year by an amount slightly greater than that of 1961.

Of the 29.7 million dollars which industrial manufacturers received during 1963 there could be observed a channelling towards industries producing materials for transport which obtained 22.4 million dollars

/displacing the

displacing the petroleum and coal branches of industry which this year received no subsidy.

It should be noted that, in the year under analysis, the chemical industry was able to count on 4 million dollars, thus constituting itself the second most important industrial branch for subsidies received.

For 1964 the amount of credits obtained was 514.5 million dollars, greater by 96 per cent than that available in 1963.

The prime source of financing this year came from credits emanating from the United States with 189.0 million dollars, equivalent to 36.8 per cent of the total available.

International organizations contributed to external financing, with 99 million dollars, this being the second highest source of credits during this year. The rest of the external credits were contributed by financial institutions from England, France, Italy, Canada, Germany, Belgium and other countries.

During this year the credits for the industrial manufacturers showed an increase which reached 125 million dollars, an amount only surpassed by the availability of credits to the production of electricity which rose to 245.8 million dollars. The fact that the manufacturing industry has taken advantage of a great amount of foreign aid for its financing follows the policy of industrial promotion laid down by the Mexican Government in 1964.

Of the total amount concerted by the manufacturing industries during 1964, the production of transport material absorbed 38.0 million dollars, a figure never reached in any previous year; while the chemical industry attained great importance on being granted 35.6 million dollars which is an indication to us of the importance of this branch in the internal industrial field.

Also during this year the textile and clothing industry used up all the credits previously obtained by using 18.2 million dollars which served for the modernization of factories in this field.

Also the basic metal industry acquired external credits for 22.6 million dollars necessary to the financing of its own development.

Table 46

MEXICO: SUMMARY OF EXTERNAL CREDITS REPAYABLE IN ONE YEAR OR MORE OBTAINED THROUGH NACIONAL FINANCIERA, ACCUMULATED FROM 1942 TO 1964

(Thousands of dollars)

	Total obtained	Disposable	Amortized	Debt as at December 1964
Total	2 889 574	2 431 991	1 138 733	1 293 258
Export Import Bank of Washington	629 773	544 385	401 072	143 313
International Bank for Reconstruction and Development	448 800	348 513	62 062	286 451
Interamerican Development Bank	120 744	31 870	131	31 739
Agency for International Development	42 501	7 445	-	7 445
Other direct credits	708 079	624 993	210 735	414 258
Other endorsements, guarantees and acceptances	939 677	874 785	464 733	410 052

Source: Nacional Financiera, S.A. Sub-Management of Financial studies.

This increase which has taken place in the channelling of external credits towards the manufacturing industry obeys the increased internal demand for manufactured products arising out of the use of income generated by government action in previous years.

/As sources

As sources of foreign credit have diversified, the terms for repayment and the rates of interest granted under such credits have been modified as in the case of extended repayments, thus granting an extension of the years of grace to the country for the first amortization of the credit. So far as the rate of interest is concerned, this has been seen to be stabilized at around 5.75 per cent, as charged by international organizations, a rate which already includes the 1 per cent charged for services rendered.

As far as the type of interest and the terms of repayment are concerned in the case of private credit enterprises or suppliers from different countries, these vary in accordance with the object for which it is intended or the merchandise to be acquired.

2. Amortizations

During recent years the amount of credits amortized has increased from 80.8 millions in 1960 to 258.7 millions in 1964, leaving for 1964 an amortized sum of 1,138.7 million dollars which added to the interests paid up to 1964, amounts to 1,379.6 millions, corresponding to the total service of the debt calculated from 1942 to 1964 (see Table 47).

So far as manufacturing industries are concerned, these have had available from 1962 to 1964 the sum of 520.4 millions and have amortized 325.9 millions during this period leaving, as at 31 December 1964, outstanding obligations to the extent of 194.5 million dollars.

During 1960 manufacturing industries obtained 38.4 million dollars and amortized 30.0 millions, leaving a net income of 8.4 million dollars.

For 1961 the amount available was 25.5 million dollars and the manufacturing industry amortized 22.8 millions and thus the net income for this year dropped to 2.7 million dollars.

For the years 1962 and 1963 there were amortizations in credits channelled towards the manufacturing industry of 54.9 and 49.8 millions respectively and less amounts were available, income during these years being negative. (See Table 48.)

As has been previously seen during 1964, 125.9 million dollars were channelled towards industry while the amount amortized during this year dropped to 44.4 millions, leaving a net income of 81.5 million dollars.

/Table 47

Table 47

MEXICO: ANNUAL MOVEMENT OF EXTERNAL CREDIT REPAYABLE IN ONE YEAR OR MORE OBTAINED THROUGH THE NACIONAL FINANCIERA, 1942-1964

(Thousands of dollars)

Year	Used	Amortised	Interest paid	Total services (2) + (3)	Net income (1) - (2)	Obligations at end of year
	(1)	(2)	(3)	(4)	(5)	(6)
1942	10 000	696	167	863	9 304	9 304
1943	-	1 105	331	1 436	-1 105	8 199
1944	-	1 136	277	1 413	-1 136	7 063
1945	8 300	1 220	269	1 489	7 080	14 143
1946	37 390	4 533	878	5 411	32 857	47 000
1947	30 198	8 781	2 171	10 952	21 417	68 417
1948	20 181	11 979	2 649	14 628	8 202	76 619
1949	31 831	14 463	3 304	17 767	17 368	93 987
1950	30 656	18 839	4 307	23 146	11 817	105 804
1951	35 772	22 549	5 099	27 648	13 223	119 027
1952	58 332	21 066	5 287	26 353	37 266	156 293
1953	48 446	18 953	6 351	25 304	29 493	185 786
1954	49 592	24 800	6 787	31 587	24 792	210 578
1955	51 166	28 375	8 581	36 956	22 791	223 369
1956	66 661	31 933	9 188	41 121	34 728	268 097
1957	90 353	37 937	9 326	47 263	52 416	320 513
1958	125 842	55 950	10 696	66 646	69 892	390 405
1959	152 758	85 747	14 278	100 015	67 011	457 416
1960	286 441	80 804	19 088	99 892	205 637	663 059
1961	249 917	94 265	22 589	116 854	155 652	818 705
1962	270 680	141 174	33 698	174 872	129 506	948 221
1963	262 928	173 650	40 271	213 921	89 278	1 037 489
1964	514 547	258 778	35 301	294 079	255 769	1 293 258
Total	2 431 991	1 138 733	240 883	1 379 616	1 293 258	

Source: Nacional Financiera, S.A. Submanagement of Financial Studies.

Notes: The first foreign credits for terms of one year or more were contracted by the Institution in 1941 and were disposable in 1942. - (x) Includes 82 062 thousands of dollars for the purchase and taking over of the liabilities of the "Compañía Impulsora de Empresas Eléctricas".

/Table 48

Table 48

MEXICO: SERVICE OF CREDITS CHANNELLED TO THE MANUFACTURING INDUSTRY

(Thousands of dollars)

Years	Used	Amortized	Net income
1960	38 472	30 086	8 386
1961	25 470	22 799	2 671
1962	48 323	54 999	-6 676
1963	29 699	49 787	-20 088
1964	125 979	44 444	81 535

Source: Annual Bulletin of NAFINSA.

/Table 49

Table 49

MEXICO: DISPOSITION OF CREDITS REPAYABLE IN ONE YEAR OR MORE BY ORIGIN AND DESTINATION

(Thousands of dollars)

	1961	Percentage	1962	Percentage	1963	Percentage	1964	Percentage
Origin	249 917	100.0	270 680	100.0	262 928	100.0	514 547	100.0
EXIMBANK	99 260	39.7	41 026	15.2	9 497	3.6	24 022	4.7
BIRF	11 416	4.6	22 018	8.1	68 218	26.0	77 602	15.1
BID	-	-	3 197	1.2	12 695	4.8	15 979	3.1
AID	-	-	-	-	2 000	0.8	5 445	1.0
Other direct credits	81 828	32.7	96 197	35.5	73 999	28.1	113 596	22.1
Other guarantees, endorsements and acceptances	57 413	23.0	108 242	40.0	96 524	36.7	277 897	54.0
Destination	249 917	100.0	270 680	100.0	262 928	100.0	514 547	100.0
Agriculture and cattle	-	-	-	-	-	-	800	0.2
Mining exploitation	-	-	351	0.1	76	a/	-	-
Manufacturing industries	25 470	10.2	48 323	17.9	29 699	11.3	125 979	24.5
Funds for imports for the private sector	75 000	30.0	15 000	5.5	-	-	-	-
Construction	46 295	18.5	13 940	5.2	71 080	27.0	39 108	7.6
Electricity, gas and water	66 759	26.7	121 051	44.7	103 823	39.5	245 884	47.8
Banks and other financial institutions	2 574	1.0	13 123	4.8	7 991	3.1	33 216	6.5
Transport and communications	33 819	13.6	51 356	19.0	38 463	14.6	61 823	12.0
Services	-	-	7 077	2.6	5 796	2.2	7 483	1.4
Others	-	-	459	0.2	6 000	2.3	254	a/

Source: Annual Bulletin of the Nacional Financiera S.A.

a/ Less than 0.1.

Statistical addendum

Table A-1

MEXICO: INDEX OF THE VOLUME OF INDUSTRIAL PRODUCTION

(1950 = 100)

	1950	1955	1956	1957	1958	1959	1960	1961	1962
General index	100.0	138.2	151.8	168.9	181.2	193.5	214.2	227.1	239.2
Mining	100.0	104.3	102.0	108.9	108.6	108.1	110.7	112.7	112.4
Precious metals	100.0	96.5	87.1	93.0	93.0	87.1	87.0	78.3	77.8
Industrial minerals	100.0	106.5	106.1	113.2	112.7	114.0	117.4	125.0	120.1
Non-metals	-	-	-	-	-	-	100.0	94.4	110.6
Oil industry	100.0	158.2	177.3	200.2	218.4	257.9	286.5	317.2	320.7
Crude oil	100.0	123.4	131.9	135.0	155.0	165.5	170.4	182.8	190.3
Derivatives	100.0	162.7	183.5	209.4	226.0	271.8	319.9	358.3	358.3
Electric energy	100.0	157.4	176.9	191.1	205.8	221.0	245.8	271.4	289.0
Construction	100.0	150.3	164.1	181.3	179.9	190.2	222.5	215.2	217.6
Processing	100.0	138.4	153.6	171.7	181.7	195.7	213.5	229.1	244.9
Consumer goods	100.0	123.1	132.1	143.6	153.1	159.8	179.2	183.9	200.7
Production goods	100.0	162.2	187.2	215.5	224.0	252.2	260.9	292.2	306.5

Source: Nacional Financiera S.A., Department of Financial Studies. Products Division.

/Table A-2

Table A-2

MEXICO: TOTAL INVESTMENT IN INDUSTRY a/

(Millions of pesos at current rate)

Years	Total
1950	1 872
1951	2 296
1952	2 389
1953	2 346
1954	3 079
1955	4 687
1956	5 312
1957	6 232
1958	6 997
1959	6 405
1960	7 732
1961	9 891
1962 b/	9 848

Source: Nacional Financiera S.A., Department of Financial Studies, Project Division.

a/ Includes: Mining, petroleum industry, electric energy and processing. It does not include construction.

b/ Preliminary figure.

/Table A-3

Table A-3

MEXICO: SUPPLY OF THE MANUFACTURING INDUSTRIES, 1958-1964

(Millions of 1964 pesos)

Concepts	1958	1959	1960	1961	1962	1963	1964
1. Food, drink and tobacco	24 482.7	26 552.0	26 998.2	28 940.9	32 043.1	34 804.8	39 487.3
Production	24 910.3	27 392.4	29 322.9	31 902.5	34 684.3	37 342.2	42 540.4
Plus imports	335.7	115.1	396.1	375.4	485.2	514.6	571.2
Less exports	763.3	955.5	2 720.8	3 337.0	3 126.4	3 052.0	3 624.3
2. Textiles	6 611.5	6 559.0	7 789.9	8 323.4	8 363.8	8 247.4	9 471.0
Production	8 480.7	8 997.9	9 546.7	10 129.4	10 746.6	11 402.2	11 098.5
Plus imports	307.8	159.7	322.6	354.4	353.2	298.2	404.9
Less exports	2 177.0	2 598.6	2 079.4	2 160.4	2 736.0	3 453.0	2 032.4
3. Shoes, clothing and others	6 273.1	7 170.5	7 547.3	7 982.1	8 370.2	8 798.1	9 271.5
Production	6 809.9	7 170.8	7 550.8	7 951.2	8 372.8	8 816.0	9 283.3
Plus imports	50.7	47.4	51.2	72.1	28.9	22.7	26.7
Less exports	587.5	47.7	54.7	41.2	31.5	40.6	38.5
4. Wood and cork industries	2 108.0	2 134.8	2 206.8	2 271.4	2 308.2	2 369.7	2 425.8
Production	2 122.4	2 173.4	2 225.5	2 278.9	2 333.6	2 398.6	2 447.0
Plus imports	44.0	19.4	42.8	42.9	36.6	43.7	53.5
Less exports	58.4	58.0	61.5	50.4	62.0	72.6	74.7
5. Cellulose pulp, paper and cardboard, etc.	2 179.5	2 325.1	2 616.7	2 782.7	2 988.4	3 245.7	3 560.1
Production	1 871.7	2 042.0	2 227.9	2 430.6	2 651.9	2 893.1	3 156.4
Plus imports	319.4	295.1	405.3	375.4	358.8	375.0	430.1
Less exports	11.6	12.0	16.5	23.3	22.3	22.4	26.4
6. Printing, publications and allied industries	1 316.1	1 441.6	1 556.9	1 679.5	1 812.7	1 905.3	2 074.6
Production	1 291.7	1 395.0	1 506.6	1 627.0	1 751.2	1 897.8	2 049.7
Plus imports	62.3	73.7	81.8	86.2	96.7	100.6	118.5
Less exports	37.9	27.1	31.5	33.7	41.2	93.1	93.6

/Table A-3 (cont.)

Table A-3 (continued 1)

Concepts	1958	1959	1960	1961	1962	1963	1964
7. Leather industry, shoes excepted	3 447.8	3 529.7	3 617.8	3 717.2	3 812.7	3 895.4	4 002.2
Production	3 453.2	3 539.5	3 627.9	3 718.7	3 811.8	3 907.0	4 004.6
Plus imports	3.1	2.1	12.8	16.2	14.8	14.4	18.4
Less exports	8.5	11.9	22.9	17.7	13.9	26.0	20.8
8. Fabrication of rubber products	1 475.7	1 623.5	1 838.1	1 992.4	2 167.6	2 373.3	2 607.7
Production	1 430.7	1 568.0	1 718.6	1 883.5	2 064.4	2 262.4	2 479.8
Plus imports	46.4	58.5	127.6	119.5	108.1	113.3	131.6
Less exports	1.4	3.0	8.0	10.6	4.9	2.4	3.7
9. Fabrication of chemical substances and products	13 227.8	13 934.7	15 488.0	16 429.4	18 860.0	20 807.7	22 455.8
Production	10 160.4	11 379.7	12 745.3	14 274.5	15 987.5	17 905.6	20 054.7
Plus imports	3 421.2	2 953.6	3 030.6	2 627.8	3 349.0	3 365.1	2 917.9
Less exports	353.8	398.6	287.9	472.9	576.5	463.0	516.8
10. Non-metallic mineral products	2 751.4	2 918.4	3 367.0	3 420.1	3 547.8	3 827.6	4 177.8
Production	2 568.9	2 784.7	3 018.7	3 272.2	3 547.1	3 844.8	4 168.1
Plus imports	2 254.6	212.1	442.2	239.6	116.6	122.7	149.6
Less exports	72.1	78.4	93.9	91.7	115.9	139.9	139.9
11. Steel and fabrication of metallic products	14 320.0	11 159.7	9 973.3	10 544.7	11 036.5	11 331.8	13 018.4
Production	7 804.5	8 444.6	9 136.7	9 885.9	10 692.1	11 366.4	12 523.1
Plus imports	7 672.0	3 882.2	1 820.1	1 424.1	1 383.4	1 211.1	1 488.2
Less exports	1 156.5	1 167.1	983.5	765.3	1 039.0	1 245.7	992.9
12. Machinery construction	9 384.0	9 534.8	11 293.9	11 091.1	10 712.8	12 173.4	13 847.7
Production	4 409.1	4 911.6	5 471.6	6 095.6	6 790.4	7 568.6	8 426.6
Plus imports	5 028.7	4 684.9	5 889.3	5 127.1	4 009.3	4 703.7	5 529.5
Less exports	53.8	61.7	67.0	131.6	86.9	98.9	108.4
13. Construction and repair of transportation equipment	5 441.2	5 985.5	7 005.3	7 447.6	7 950.8	8 872.0	10 122.4
Production	3 357.1	3 756.6	4 203.8	4 703.9	5 263.6	5 890.1	6 591.0
Plus imports	2 121.7	2 254.1	2 900.2	2 788.1	2 710.0	3 008.7	3 588.8
Less exports	37.6	25.2	98.7	44.4	22.8	26.8	57.4

/Table A-3 (concluded)

Table A-3 (concluded)

Concepts	1958	1959	1960	1961	1962	1963	1964
14. Other processing industries	1 601.0	1 656.5	1 828.8	1 890.1	1 945.5	2 107.2	2 315.2
Production	1 012.8	1 098.0	1 190.1	1 290.1	1 398.5	1 515.8	1 643.2
Plus imports	626.1	600.7	689.5	652.1	608.8	665.7	753.1
Less exports	37.9	42.2	50.8	52.1	61.8	74.3	81.1
Totals	94 619.8	96 525.8	103 128.0	108 512.6	115 920.1	124 759.4	138 837.5
Production	79 683.4	86 654.2	93 493.0	101 444.0	110 101.8	119 010.6	130 466.4
Plus imports	20 293.7	15 358.6	16 212.1	14 300.9	13 659.4	14 559.5	16 192.0
Less exports	5 357.3	5 487.0	6 577.1	7 232.3	7 841.1	8 810.7	7 820.9

Source: Bank of Mexico; General Direction of Industries, S.I.C., ECLA.